


THE
HEALTH OF OUR CHILDREN
IN THE COLONIES

DR. LILIAN AUSTIN ROBINSON

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A BOOK FOR MOTHERS

BY
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TO MY CHILDREN

P R E F A C E

THE ultimate test of the prosperity and stability of a new Colony lies in the health of the children born and reared in it. During a number of years spent in South Africa and India, the subject of infantile mortality in tropical and subtropical climates has been one of ever-increasing interest to me. If we take South Africa as an example, and inquire—How does it fulfil the above test? we have a significant answer in the most recent report of Dr. Charles Porter, medical officer of health for Johannesburg. With his permission I make use of it. During the last three years in Johannesburg, out of every thousand children born of white parentage, just upon two hundred have died before reaching the age of one year—in other words, one child in every five fails to see the first anniversary of its birth. In Cape Town and Kimberley the average infantile mortality is about one in seven; in Durban, during the same period of time, it is one in nine. The report further states that *more than half* of these

deaths are due to diseases of the digestive system, with their resulting malnutrition and disturbances of the nervous system. For this most serious condition of things the following are the two chief causes assigned: (*a*) Early weaning and unsuitable hand-feeding; (*b*) Contamination of the milk supply. Dr. Porter sums up his report on infantile mortality in the following forceful and convincing words:—

“In conclusion, I would observe that, serious as are our infantile mortality figures, it is open to question whether they afford any adequate index of the loss and damage to the community. . . . The sickly children who survive the battle of a neglected infancy are apt to grow into puny and physically deficient adults. . . . Excessive infantile mortality thus becomes a great social and national blemish, against which it behoves us all to strive.”

My aim in writing this little book is to try and pass on some of the experience gained in this land and in India to mothers whose lot it is to bear and rear their children in subtropical climates. I have endeavoured to lay stress upon those conditions which are a special menace to the lives of our little ones in hot countries; thus, the “Artificial Feeding of Infants” and the “Diseases of the Digestive System” have been dwelt on at considerable length.

If, as the result of these pages, any little lives are

piloted safely and with a minimum of physical strain through the perils of infancy and early childhood, I shall not have written in vain.

My sincere thanks are due to Dr. Sarah Gray, of Nottingham, England, for her help in correcting proofs; to Dr. Aylmer Dumat, of Durban, for his kindly and much valued criticism; to Dr. Henry Ashby, for permission to follow the main outlines of his "Health in the Nursery;" and to Mr. W. E. Marsh, of Maritzburg, for his contribution to the chapter on "Dentition," in regard to the practical care of children's teeth.

LILIAN AUSTIN ROBINSON.

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THE HEALTH OF OUR CHILDREN IN THE COLONIES

CHAPTER I

GENERAL HYGIENE OF INFANCY

Some Facts concerning Infant Life

Weight.—A healthy infant at birth may weigh anything between five and twelve pounds, the average weight being about seven pounds. All infants lose weight slightly during the first four or five days, owing to the fact that the waste matter thrown off from the system is in excess of the nourishment taken in. At the end of the first week, however, the amount lost will have been regained, and from this time onward there should be a steady gain in weight at the following rate:—First to fifth month, about five ounces a week, or nearly one pound and a half a month; fifth month to the end of his first year, four ounces a week, or one pound a month. At the end of the fifth month, therefore, a baby should have doubled his weight at birth, and at the end of his first year he should have trebled it. After this time the weight increases more

slowly. During the second year there is usually a gain of about six pounds, and during the third year of four or five pounds. At six years of age an average child weighs six times as much as he did at birth, and at fourteen years twelve times as much. Many infants increase in weight even more rapidly during the first six months than as above stated.

Length.—The length of an average infant at birth is about twenty inches. He should grow at the rate of an inch a month for the first five months, and three-fourths of an inch from the fifth month to the end of the first year. During the second year there is an average gain of five inches, and during the third of four inches. At the end of the fifth year, therefore, the original length should be doubled.

Anatomy of the Infant contrasted with the adult.

There are certain differences in the anatomy of infants and adults which have an important and very practical bearing on their physiological functions. We will briefly enumerate them.

(1) The GLANDS concerned in digestion.

These glands, though present in the new-born child, have not the secreting powers they acquire later. What are known as the *Salivary Glands*, which help in the digestion of starch, do not perform their functions fully until the first few teeth have appeared. The secretion of the *Pancreas* also, which later on helps in the same process, is limited to its action on fats and peptones during the first few months of life.

These facts go to show that starchy foods are

not suitable for young infants, and should only be given in small quantities even at the end of the first year.

Liver.—An infant's liver is larger in proportion than an adult's, and can be felt very distinctly on the right side below the last fixed rib. One of the most important functions of the liver, *i.e.* its secretion of bile, is fully developed at the time of birth.

Stomach.—During the first few months of an infant's life, the stomach has the appearance of a globular-shaped dilated portion of the digestive tube, and occupies an almost upright position. The result is that vomiting occurs in the infant more easily than in later life. The muscular wall of the stomach is thin and flaccid at birth, but it strengthens and develops rapidly during the first year. The average capacity of the stomach in the newly-born infant is a little more than one ounce (two tablespoonsful). At six months it can hold six ounces, and at twelve months, nine ounces.

The digestion of an infant's food is not all done in the stomach. The curd of the milk (caseine) is broken up there, and in weakly infants is sometimes retained while the more fluid portions of the meal are passed on into the part of the bowel which lies immediately beyond. The retention of this curd is a source of great discomfort to the infant, and gives rise to colicky pain, usually relieved by the vomiting of hard curdy masses. The reason of this retention is that the stomach is too weak to deal with the meal taken into it, and requires the food to be presented to it either

in a more diluted form, or with the curd partially pre-digested.

The Intestine.—The infant's intestine is longer in proportion than the adult's, and, like the stomach, its muscular wall is feeble. This explains the great tendency to "wind" in babies, and also to constipation. The small intestine helps largely in the digestion of food in infancy. Fats, sugars, and proteids are all acted on by the various intestinal juices, and are thus prepared for absorption into the general circulation.

Lachrymal Glands (tear glands).—Babies do not shed tears, as a rule, until they are four months old. In young children very serious illness often stops the secretion of tears for the time being, and their re-appearance is a favourable sign.

(2) SPECIAL SENSES.

Sight.—During the first few days a baby is practically blind, and a candle can be held close to its eyes without producing any movement of the pupil. Within ten days it begins to distinguish light from darkness, but it is not until several weeks later that a baby can recognize familiar objects, such as mother or nurse. After the third month colours attract him, and his eyes will follow a brightly tinted ball tied to the cot and allowed to swing before him.

Hearing.—Babies begin to notice sounds within the first week of life, and will start at a sudden noise. They will not distinguish voices, however, until about the third month. At six months a baby begins to rejoice in any noise he can make with a toy or spoon, while noises around him attract his attention.

Sensation is not acute in a newly-born infant. A nurse's cold hand on the bare skin does not seem to cause distress. Neither are the special senses of *taste* and *smell* well developed at this stage.

The Care of the Infant

A newly-born infant is the worst equipped of the whole animal creation for the battle of life which is before it, and herein lies both its strength and its weakness.

The little, soft, protesting thing, red as a turkey cock, with features in which only the adoring eyes of the mother can detect any future promise, arrives on the scene as helpless as a rag doll, and about as ornamental, and enters at once into its kingdom of love and devotion, to rule with a despotism unequalled by any Eastern potentate. One end of life is curiously like the other : we come to our heritage much as we leave it—should we attain to the fulness of years—toothless, deaf, blind, with no digestion to speak of, indifferent to everything but our immediate requirements, and systematically unresponsive to the devotion of our nearest relatives. Well for us is it that we are received into the arms of those who have waited for our coming, prepared for us with loving hands, and idealized us beforehand to such an extent that no disillusionment can affect our welcome.

The First Toilette.—The young mother who has a well-trained nurse may safely leave all details of her infant's washing and dressing to her, but for the benefit

of inexperienced mothers, whose lot may be cast in lonely places with only a well-meaning but timid neighbour available, the following directions will be useful :—

The newly-born infant should be laid on a soft flannel apron on the nurse's lap, and gently rubbed over with sweet oil for cleansing purposes. Should the eyes, mouth, and nose not have been cleansed at the time of birth, which is the safest and best plan, this must be attended to now. A soft cambric rag is the best for the purpose, and should it be at hand, a little warm boracic lotion (*Form. I.*) can be employed. Failing this, the water that has been prepared for the child's bath may be used for the purpose, before it has been soiled in any way.

Some superfatted, non-irritating soap must be chosen for the first bath, applied gently over the whole body, excepting the face. The child may then be placed in a small, shallow bath or wash-hand basin, in warm water, 98 degrees Fahrenheit. (A bath thermometer should be purchased at the same time as a baby's "basket.") His back and head should be supported securely by the nurse's arm. Her other hand is used for sponging. After a minute or so the child must be taken out and laid face downward, then "dabbed," not "rubbed," over with a soft turkish towel, special care being given to creases in neck and arms. Good dusting powder (*Form. II.*) or violet powder, from a thoroughly reliable source, may be lightly puffed over the dried surface. The child must be then turned on his back on a dry part of the towel and the same process repeated.

Dressing the Cord.—While in this latter position the cord can conveniently be dressed. This is best done with a little cambric rag, or the antiseptic gauze sold for the purpose, about four inches square. The middle of the dressing should be slit three-quarters of the way down and fitted around the cord, the ends being folded over to form a pad. There is no need to apply dusting powder, but, if preferred, a little boracic powder, or equal parts of starch, oxide of zinc, and boracic acid, may be dusted on before the dressing is folded over (*Form. III.*).

The “cord” withers up and drops off within the first week. It is better not to place the child in the bath after the first toilette until this has occurred, if there is no experienced help at hand; though he may be washed over thoroughly every morning on the nurse’s knee. The binder must be carefully adjusted night and morning for the first fortnight to prevent the possibility of hernia (*rupture*).

Binder.—The binder is chiefly necessary to keep the dressing of the cord in place; it can be discontinued after the first fortnight, should everything be natural, and a knitted “belt” substituted. A strip of flannel, eighteen inches long and seven inches wide, makes a good binder. The ends cross in front and the outer end is stitched at one side. Shaped binders can be bought if preferred, but they do not appear to keep in place as well as the simple flannel strip.

Vest.—A soft, knitted or woven vest is next put on, and a *bapkin* or *antiseptic* napkin follows this. A dozen of these should find a place in every layette

(they can be easily made of absorbent wool covered with butter muslin), as the first excretion from the bowel is *meconium*, a greenish, sticky substance, very difficult to wash off. After the first week ordinary turkish towel napkins may be used.

Long Flannel.—This may be made in one, or, according to the American pattern, in two parts, the bodice consisting of a straight piece buttoning in front, and the skirt, which buttons on to the waist, opening in front and reaching a few inches below the feet. In cold countries the long flannel bodice is made with sleeves, but this is unnecessary in a warmer climate. The arm-holes are best left open with soft ribbon at their edges to tie when the garment is adjusted. In my opinion a long flannel petticoat is an improvement on the long flannel, which often gapes in front and allows the little feet to protrude between its tape fastenings.

Night-gown.—This should be made of some soft woollen material—vyella for the colder months, and nun's veiling or mousseline de laine for the warmer ones. The nightgown should not exceed twenty-six or twenty-eight inches from neck to hem. Any extra length adds unnecessary weight and serves no useful purpose.

Day-gown.—These may be of fine woollen material or of soft China silk. They should not measure more than thirty inches from neck to hem, and should be made with long sleeves to draw in round the wrists, and with a loose neck-band through which a soft, silk ribbon is run.

Head Flannels are not necessary, and are rather a danger than a protection, as they are continually slipping off. A more useful contrivance is a little silk or knitted woollen bonnet, after the fashion of a close-fitting Dutch bonnet. This is tied under the chin with soft ribbon, and may be depended on to stay in its place. Unless, however, the child is out-of-doors, it has no need of any head-gear.

A soft, light "Chaddah" or "Llama" shawl and knitted socks, in cold weather, complete the baby's outfit. The advantages of light woollen clothing in a changeable climate cannot be too strongly insisted on, and although a young mother will sometimes look with regret into the baby's drawer, well stocked with dainty cambric and embroidered robes and gowns, the expression, in many cases, of loving interest from her far-away "home" circle, she may rest assured that in providing the outfit just recommended she will be acting in the child's best interests. A list containing numbers of each garment necessary will be found in the Appendix.

When the first toilette is finished, the baby should be placed in the cot or basket prepared for it, and covered up warmly. If the weather is cold, a hot-water bottle may be placed at the foot *between* the covering blankets. A few hours later, if the mother has rested well, the little one should be taken to her for its first meal, which, although probably a very scanty one, will serve for its immediate needs. This process may be repeated at intervals of four hours, when the babe is awake, for the first two days. At the end of this

time there should be an ample supply of milk, and the regular two-hourly nursing can be begun.

The four essential requirements of infancy are :
FOOD, SLEEP, WARMTH, FRESH AIR.

Food.—Nature provides a suitable food for the young infant in its mother's milk. Notwithstanding the fact that in this scientific age our study tables are crowded each mail day with samples of foods, stated in the accompanying pamphlet to be "a perfect substitute" for this old-fashioned commodity, I should advise every young mother to undertake the entire nursing of her child, unless she has thoroughly satisfied herself and her physician that a change to artificial feeding is desirable in her own or her child's interest.

For the first three months a baby will require feeding every two hours when awake. After this period, when the capacity of the stomach has increased, the time may be extended to two hours and a half, and at six months to three hours. A healthy baby will sleep five or six hours during the night without waking, and a good monthly nurse will probably train it to do so, knowing what a benefit this rest-time is to both mother and child.

Do not rouse a healthy baby to feed it under four hours by day, and not at all by night. Some tender-hearted mothers imagine that a baby is hungry every time it cries, and would nurse it at half-hour intervals, if allowed. A healthy baby certainly does not need food *more often* than every two hours, and may go much longer without any injury. It is well to rouse it at the end of a four hours' sleep by day in order

to secure a better rest at night for both mother and child. If the child cries between its meals, some other discomfort must be looked for. The binder often becomes tight after a meal, owing to the great distension of the stomach by gas. All babies suffer more or less from "wind" during the first three months, before the walls of the stomach and intestines develop muscular "tone." Bottle-fed babies are especially liable to it, chiefly owing to the greater rapidity with which they take in a meal.

Gentle movements in the nurse's arms with a loosened binder, or rubbing with the hand over the distended stomach, will usually relieve the infant's discomfort in a few minutes. Dill-water is also a favourite and harmless remedy.

Sleep.—Four-fifths of a baby's life for the first few weeks is spent in sleep, and two-thirds of it until the end of the first six months. Babies vary in their capacity for sleep as they do in other things ; but, broadly speaking, the healthier the baby the better it sleeps.

The proper resting-place for a baby is its cot ; not the mother's bed. The cot should be on a stand, to avoid dust and draughts from under the doors. It should be lined through and fitted with a *hair* mattress, which, with all the bed-clothes, must be put out in the sun every day for an hour or two. A mackintosh sheet should protect the mattress, and over this comes a soft old blanket, on which the child is laid. Cashmere sheets may also be used, but are not necessary. The covering should be of soft, warm

blankets, with an eiderdown perforated with eyelet holes for cold nights. A down pillow which fits the cot well may be incased in a silk or cambric pillowslip. It is always advisable to let young children lie between blankets or woollen sheets to minimize the risk of chills.

Warmth. — Infants have very little power of generating heat, and no power of resisting cold. They should, therefore, be kept in a fairly warm temperature for the first few weeks, until they have acquired a certain amount of constitutional "tone." It is better to keep the room warm by a fire or large lamp in cold weather than to trust to a multitude of shawls or blankets. Wrapping a young child up or covering it with many bed-clothes exhausts it, and renders it more susceptible to cold.

Fresh Air. — Our colonies, as a whole, are so liberally endowed with sunshine that the temptation to shut up windows and doors is reduced to a minimum. A baby, unless exceptionally delicate, can begin its open-air life from the first week, and can be taken out with advantage to the verandah, or into the garden, if sheltered from wind, for an hour or so at a time while the mother rests. When two or three weeks' old, its cot can be kept on the verandah for the greater part of the day. It is not necessary to cover a baby's face up with a veil or handkerchief. A green-lined sunshade carried by the nurse will protect it from the sun out of doors. High and cold winds must be avoided, as they are apt to set up irritation and even spasms in the infant's delicate air-passages.

Exercise.—The term “exercise,” applied to an infant under three months, can only be used in a passive sense. But recent investigations on the subject have proved that the dandling and carrying which an infant receives are of real value to it. The reports of various infant asylums in France go to show that children who were never taken up, excepting for necessary purposes, developed far more slowly and were more liable to die off from some slight ailment than those who were carried about during the daytime. None but gentle movements are permissible, of course, and at this early stage it is well to avoid even the most up-to-date baby-carriages. No C springs and rubber tyres can protect a young infant from jars to its delicate spine as efficiently as a mother’s or nurse’s arms.

It may not be out of place here to relate a case bearing on this subject. An apparently healthy child of two months was taken a night journey of about eight hours by train. She was laid to sleep on the seat of a well-upholstered carriage, and apparently slept well. Soon after leaving the train, however, symptoms of brain irritation set in, and death ensued in three or four days. The absence of all evidence of disease in this child, and the fact that she was one of a large family of healthy children, point to the jar of the train acting on a possibly hyper-sensitive nervous system, as the probable cause of death.

Baths.—For the first few weeks one bath a day, preferably a morning one, will be sufficient. It should be given at a temperature of 98 to 95°, and the child should be washed all over before being

placed in it. The whole operation should not take more than ten minutes, as exposure of a young infant for longer is apt to lower its vitality temporarily. Some infants get a blue line round the mouth whenever they are bathed ; frequently one arm or leg will become blue. When this is the case, the operation must be hastened, and in cold weather the bath must be placed near a fire. Only the best soaps should be used, and should be applied by a turkey sponge, or by the hand. Wash-flannels are apt to "ruck " and irritate the skin. The evening washing should be limited to the face and hands, and to those parts which have been in contact with soiled napkins. It is always well when changing a napkin to wash the buttocks with a little warm water, and dry thoroughly. If they show any sign of redness, a little vaseline or lanoline may be applied. The powder-puff is used as a routine practice by most nurses when changing the baby, and provided the powder is good, there is no harm in this practice.

Comforters.—What I have to say on this subject must be entirely in the way of warning. Not five per cent. of the mothers who use comforters for their children can ensure their perfect cleanliness at all times. A dirty comforter, like a dirty bottle, is responsible for many of the digestive "upsets" of infants. In some cases, intestinal disorders of a very grave character must be laid to its account. When comforters are used, the same precautions should be taken with them as with the teat of a feeding bottle (see "Artificial Feeding of Infants").

A further possible source of harm in the use of the comforter has been suggested in its influence on growths at the back of the throat (adenoids). Although the connection between the prolonged and constant use of the comforter and the appearance of these growths has not yet been proved, the theory is not an improbable one.

The safest and best plan with regard to comforters is to avoid their use entirely. Since, however, our domestic conditions in most colonies are far from ideal, no doubt many mothers will continue to cling to this method of pacifying a crying infant, and will be willing, at most, to accept a compromise. My advice to such is, Never make the comforter part of the child's outfit by hanging it round its neck or pinning it to the front of its dress. Keep it in a cup of weak boracic lotion, and only use it when the exigencies of domestic routine make it impossible to give the fractious infant the solace of its mother's presence and attention. Above all things, do not let the comforter be handled by any one but yourself, or a thoroughly trusted nurse. The practice of handing over baby and "comforter" to a small native nurse boy, or a dusky "maid-of-all-work," during the busy hours of the day, cannot be too strongly condemned. Well for the infant if his miscalled comforter does not become a medium for the conveyance of germs to his system which will provide both the victim and his mother with many hours of sorrow and discomfort when the day of reckoning comes.

CHAPTER II

EARLY GROWTH AND DEVELOPMENT

Child-Study

CHILD-STUDY has become a science within the last twenty years, and societies have been formed and magazines published in its interests. This is a most valuable development, and deserves every encouragement. It is not possible for every young mother to avail herself of the knowledge circulated in these ways, but she may write herself down an honorary member of the society if she sets herself to observe systematically all the phases and developments of the little life entrusted to her care.

When the nurse has left, and the mother becomes responsible for the baby's well-being, her heart sometimes sinks within her as she recalls the many tales of childhood's ailments related by would-be sympathizing friends. It will comfort her to know that babies who come of good stock are wonderfully tenacious of life, provided their essential wants are attended to.

How to Study a Baby.—As the little one lies on the mother's knee to be dried after its bath, she will

notice several points about which she may be glad of information. The head is large in proportion to the rest of the body, and on the top, towards the front, is a space, covered by membrane only, which rises and falls gently with the rhythmical beating of the heart. This space is known as the *anterior fontanelle*, and is not completely filled in by bony substance until the end of the second year. It is found at the junction of the frontal bone (forehead) with the two side bones, and is left open in this way that the brain underneath may have room to expand and develop. This *fontanelle*, or *little window*, measures about three-fourths of an inch across in either direction.

There is a similar but smaller space where the two side bones join the occiput (back of the head), but this closes early and is of no practical significance. Alterations in the size and shape of the anterior fontanelle, and also in what is called its "tension," occur in certain diseases, and it becomes at times a useful guide to the physician.

Abdomen.—The abdomen is the cavity situated below the chest, or *thorax*. It contains the organs concerned with the digestion and absorption of food and with the excretion of waste matter. It is rounded and prominent in the infant, partly on account of the large liver, and also because the muscles enclosing it in front are thin and are easily pressed out by the distended intestines. What is known as a *retracted* (flattened out) abdomen usually signifies some form of wasting disease.

Chest.—There is nothing of special note in the

chest of a healthy infant. It is usually well covered, so that the ribs are not noticeable. It does not move as much with respiration when the child is breathing quietly as does the abdomen below it. Children are therefore said to have the "abdominal form of respiration," and it is easier on this account to detect the beginning of chest disease in infancy by the altered character of the breathing.

Limbs.—The limbs of a healthy infant are plump and mottled. The hands and feet are beautifully formed, but they appear at this stage very inadequate for the part they will play in his life two years hence.

Skin.—The skin of a healthy baby after the first fortnight should be pink or mottled—velvety to the touch, with a certain elastic rebound when taken between the finger and thumb and released gently. A harsh, inelastic skin always denotes a badly-nourished baby or some definite disease. It is common during the first week of life for the skin to assume a yellowish tinge; a careful nurse will always draw the attention of the physician to this condition as soon as she observes it, though in the majority of cases the coloration passes off without treatment.

The Cry.—The infant, according to the poet, has "No language but a cry;" but we must admit that he makes good use of his one means of expression. It is important to study an infant's cry, and to try to distinguish the varieties of it.

The Cry of Hunger is fretful, but not necessarily loud or continuous. The child often stops in the

middle to suck his fist or thumb. The cry ceases like magic when the wants which produced it are in the way of being satisfied.

Cry of Pain.—This is sharp and piercing. If due to colic, the legs are raised and the thighs flexed on the abdomen. The features become drawn, and a blue line appears around the mouth. The possibility of a pin pricking must always be kept in mind if the cry is continuous, and search must be made. Pain from indigestion and colic is remittent, and the cry, therefore, bursts out again after a period of quiet, as the spasm returns.

Cry of Discontent.—A baby, unless trained very early to lie in his cot, is extremely averse to doing so, and announces his disapproval with no uncertain sound. If his wishes are disregarded, the cry becomes first piteous, and then clamorous. As soon as he has gained his point the little tyrant becomes all smiles and graciousness, and his mother's good resolutions not to give in to him most likely vanish on the spot.

Cry of Discomfort.—Many babies seem to feel the discomfort of wet napkins in their very early days, and will fidget and fret until these are changed. This sensitiveness should be encouraged, as it is easy to train such babies in good habits. After the first month a baby should be "held out" for the purpose of relieving itself, whenever the napkin is changed. In a very short time the action of emptying the bladder becomes automatic, and many wet napkins are saved. A well-trained baby can often leave off

napkins by the end of the first year, though he may occasionally wet his bed at night. It is important to remember in this connection that older children, when cutting a back tooth, may wet their beds several nights in succession, although their ordinary habits have been those of perfect cleanliness for months past. This relapse into baby ways is only temporary as a rule, and is probably due to reflex irritation of their nervous system by the oncoming tooth.

Observation during Sleep. — A healthy baby asleep is the ideal of repose. He usually lies well over on his side, his face turned in towards the pillow. The legs are drawn upwards and the arms flexed, with the closed fists tucked under the chin. All the muscles are relaxed. The eyes are closed and the lips just parted, while the chest and abdomen rise and fall gently with his soft, regular breathing. The face in repose is perfectly smooth ; no “expression lines” are as yet engraved upon it. There is usually a slight flush on the face of a sleeping child, which remains for a time after waking. The hands and feet feel warm to the touch, whereas when the infant is awake, owing to their constant movement, they are often much colder than the rest of the body. The skin of the face should be cool and only slightly moist. Babies do not perspire as readily as adults, and a moist head, when a baby is in a cool room with only light coverings on him, denotes a certain amount of weakness.

Excretions. — The stools of a healthy baby, after the first four or five days, during which a bile-stained,

sticky substance called *meconium* is passed, should be of bright yellow colour, semi-solid in consistence, with no "lumps" in them, and without odour. They should have an acid reaction, *i.e.* blue litmus paper applied to them would turn red. When the napkin which receives them is laid aside for a time the stool becomes greenish in colour and has a perceptibly sour smell. Two or three stools are usually passed in the twenty-four hours, but four or five is not an unusual number during the first few weeks, owing probably to the larger amount of fat in the milk of the newly-made mother. In later infancy one or two is the rule, and should they become more frequent some cause must be sought.

Green Motions occurring occasionally in a healthy infant without any other symptoms have no special significance. The change of colour is due to the over action of certain secretions of the bowel. Should they persist, the question of the feeding must be carefully gone into.

Pale Yellow Motions often signify that the milk is deficient in fat, since this it is which gives to the normal stool its golden yellow tint.

Clay-coloured Motions are due to deficient bile in the intestine, and denote a sluggish liver. In jaundice the motions are of this kind, and are usually very offensive, since the bile has an antiseptic action on the contents of the intestine.

Certain Drugs also change the colour of the motions, *e.g.* bismuth turns them dark, greenish grey; iron stains them black, and so on.

Body Weight.—It is a good plan to weigh every baby at least once a fortnight for the first six months of its life, and once a month for the next two years. No special scale is necessary, though a very good one, with a basket attached, is sold for the purpose by Hawkesby, of London. A convenient method is to weigh the baby in its nurse's arms on an ordinary scale, and then the nurse alone. The difference between the two weights gives the baby's weight. It is especially important to weigh a baby regularly when any change of food is being made. My own plan is to weigh twice weekly when there is any doubt about the food agreeing, so that valuable time may not be lost.

Hygiene of Later Infancy

Diet from the Sixth to the Twelfth Month.—It is usually advisable to supplement the mother's milk by some form of milk food by the end of the sixth month. In many cases it has to be done earlier, and one might almost say that six months is the *average* nursing period amongst Europeans in the Colonies, instead of nine months as in England. Even at the earlier period, provided the child is healthy, it has little difficulty in adapting itself to a suitable addition to its natural nourishment. The comparative ease with which a three-months'-old baby can be suited with artificial food, compared with one who is hand-fed from the very beginning, is a

striking proof of the value of breast-nursing, even for this limited time.

The most suitable addition to the diet is cow's milk, from a thoroughly reliable source, diluted with an equal part of barley-water or oatmeal water (see Appendix). The milk should be heated in a clean enamel saucepan just short of the boiling-point (see Appendix, "Sterilization"). This sterilizes the milk without changing it. Malted foods are useful after the sixth month when added to milk. *Dried milk* foods are, in my opinion, not so suitable as those which are prepared by the addition of fresh cow's milk. The cases in which cow's milk appears to disagree will be fully treated of in the chapter on "Artificial Feeding."

The feeding-bottle used should be one open at both ends, through which a stream of water can be passed. Allen & Hanburys' pattern is excellent, but the rubber valve which plugs the end has a genius for coming out and disappearing at awkward moments, and its recovery often entails a night journey on hands and knees under the bed. For this reason a glass screw-top is preferable. A bottle brush should always be used, and there should be at least two bottles "on duty" at a time. When a meal is over, they should be emptied at once, washed out with a stream of warm water and the brush, and should lie in boracic lotion (*Form. I.*). The teat should always be turned inside out after use, and thoroughly washed before being placed in the lotion.

Diet after the First Year.—For the next two

years milk must still form the staple diet, with the addition of suitable farinaceous foods. The meals of young children should be carefully planned and carried out by the mother herself, or by some one immediately responsible to her. A well-chosen diet may be considered the first line of defence against the incursion of disease. The accompanying table gives a suitable dietary for the second year of life:—

Breakfast.—Porridge — Quaker oats or mealie meal, viz. ground maize, with milk and sugar—followed by toast or stale bread and butter, and a teacupful of milk or cocoa.

10.30 or 11 a.m.—A breakfast-cupful of milk.

Dinner.—About 1.30. A lightly boiled egg on alternate days, in rotation with mashed potatoes and butter, and a little well-cooked green vegetable, or chicken broth thickened with barley, rice, or potatoes. Milk puddings or junket. Stewed fruit, baked apples, or home-made jam may be given in small quantities. A breakfast-cupful of milk to drink.

Tea.—About 5 o'clock. A breakfast-cupful of milk, or milky cocoa, with wholemeal bread, butter, honey, or home-made jam.

9 or 10 p.m.—If awake, the child may have a teacupful of milk or cocoa.

Children at this age waken early and may have a biscuit before they get up. A drink of milk is often asked for, but it should not have been kept in the room during the night.

According to the above table the child takes a pint and a half of milk a day, in addition to its other

food, and this is the *minimum* for a healthy child at this age.

Third Year.—The diet should be on the same lines, with the exception that larger quantities are taken. Gravy and green vegetables may be given with potatoes or rice at the midday meal, and also fish, chicken, or mutton in small quantities on alternate days, if the parents desire a meat dietary for the child. The child should be encouraged to eat stale bread or toast with this meal. One egg may be allowed either for breakfast or tea two or three times a week. Fresh or stewed fruit may be given daily.

The evening drink of milk will probably not be needed.

Water.—Quite young infants may be given water to drink from time to time, especially during teething, when the gums feel hot to the touch. All water given to them should be boiled and allowed to cool in a perfectly clean jug, over which a thin cambric handkerchief is thrown to keep out dust and flies. It should be given in an ordinary feeding-bottle, a few teaspoonsful at a time. Children running about should have a jug of boiled water, similarly protected from dust and flies, placed for their use in a convenient spot.

No Filter should be used which is not on the Berkefield or Pasteur-Chamberlain principle. The use of bath-room and garden-taps for drinking purposes should be absolutely prohibited.

Debatable Articles of Diet

Meat.—A healthy child under the age of five does not need meat, and children far beyond this age are better without it as a rule. I do not believe in making an absolutely hard-and-fast rule in this matter, since children vary a good deal in their adaptability to certain forms of diet. There are undoubtedly cases in which red meat, raw beef juice, and other meat extracts will build up a flagging system more quickly than a vegetarian diet; more especially is this the case in certain digestive troubles and other diseases of malnutrition.

When meat is given, it should be in the form of an under-done chop, or a slice from the joint, cut up very fine, or, better still, "teased out" with two forks—preferably mutton from a reliable source. Frozen beef and mutton have a very doubtful value in the dietary of young children. A *daily* diet of meat should never be given before the age of five, excepting under medical direction. Fish and chicken are suitable alternatives.

Fruit.—In those Colonies where fruits grow in great abundance and variety, both fresh and stewed fruit should have a definite place in a young child's dietary. At the same time more digestive disturbances can be traced to the *abuse* of fruit between the ages of two and five than to any other source.

Two rules should be laid down in every household for children under the age of five:—

1. No fruit should be eaten by a child which he does not first bring to his mother for approval.

2. Fruit should not be eaten excepting as part of one of the three principal meals, or in the middle of the morning or afternoon *in place of* the biscuit or bread and butter usually given at those times.

If little children are trained to bring their presents of fruit and sweets direct to their mother "to take care of," they will think it no hardship, and she will in this way obtain control over a most important source of digestive "upsets."

Mashed bananas, strawberries, the pulp of grapes, stone fruits, and oranges, carefully prepared, can all be used if given with the precautions stated. Pine-apples, "stringy" mangoes, avocado pears, and grenadillas are unsuitable for young children.

Stewed fruits are best given as an accompaniment to milk puddings and bread and butter.

Dried fruits are not a desirable form in which to give fruit to young children. A good deal of gastric irritation may be caused by the skins of French plums, and figs are very apt to contain maggots when imported.

Nuts, although they contain very nutritious properties, need a good deal of preparation to make them suitable articles of diet for young children. We had better add them to the list of "undesirables" for this reason.

Sweets.—Nothing can be worse than the way in which children are provided with sweets to eat, in season and out of season. Yet pure sweets have their

uses, and should not be altogether excluded from a young child's dietary. Plain chocolate of good quality is a valuable remedy in constipation, and a small quantity may be given just after breakfast and dinner for this purpose. Some crystallized fruits have the same effect. No sweets should be given between meals. The plan of giving some form of sweet after a dose of medicine is both beneficial and merciful. The child's repulsion to the dose is overcome to some extent by the promise of something nice to follow, and there is therefore less chance of its being rejected immediately, while the unpleasant taste which lingers in the mouth is apt to cause vomiting unless neutralized by some acceptable flavour.

General Principles governing the Diet of Later Infancy

Hours of Meals should be strictly adhered to.—Children are in one respect very like mechanical toys. They are wound up by each meal to go for a certain time and no longer. Half an hour's delay in the mid-day meal, which is of little consequence to a grown person, may produce a distinct amount of exhaustion to the system of a very young child, which the belated meal will not altogether remove. A child should come to his meals hungry, having had at least two hours' interval since his last refreshment.

Should Children be made to finish whatever is put on their Plates?—The old-fashioned nursery

discipline on this point was, no doubt, excellent in the main, but it lacked the intelligence that our present-day knowledge of the balance of waste and repair in the tissues gives us. The time-honoured command of the old nursery days to the child who announced that he did not want what remained on his plate, "Never mind that, sir; eat it against you do," seems a little too inflexible for modern routine discipline. While carefully avoiding any pandering to a child's "fancies" for unsuitable food, I should certainly hesitate to apply such a rule to children in our Colonies. A watchful mother or nurse will gauge pretty accurately the amount each child is likely to eat, and the helpings should be distributed accordingly. Children as a whole do not maintain quite the same average of health in the Colonies as they do at home, and if a child's appetite flags on a day when a scorching hot wind is blowing, or when a three-days' rain in summer is succeeded by low-lying clouds, and an unendurable state of "mug" in the atmosphere, I should consider that the child had satisfied its requirements by taking a light meal only.

Fads.—This is a different thing to allowing children to indulge in fads about their food. A good many parents at the present day are feeling their way through the fog-enveloped paths of pseudo-science to some more rational way of living. This in itself is good; but, unfortunately, many of them stray into bypaths of "faddism," and lose the broader way which they set out to discover.

A "fad" in this connection is briefly a system

which, being in itself unpliant and rigid, requires all sorts and conditions of humanity to adapt themselves to it. Now, no "fad" ever invented failed to do good to somebody, but it does not follow that it will not do an equal amount of harm to a good many other bodies. Faddists, like quacks, strive to adapt the individual to their treatment, not the treatment to the individual.

We may keep a perfectly open mind on all the present-day systems dealing with modified diet and special hygiene, but we should neither discuss them before nor practise them upon children, until each system has been passed out of the experimental stage into that of proved scientific appropriateness. Our children look to us for the heritage of sound minds in sound bodies, and there is nothing more detrimental—at times even fatal—to a young child than to make it the victim of such experiments. A wise mother will know when not to press a particular food on a child, to which it has evidently a great dislike; but the wholesale rejection by some children of milk, milk puddings, and porridge, in favour of more highly seasoned foods, must be firmly and persistently forbidden.

Exercise.—A child begins to walk early in its second year, and once it feels confidence in its new-found powers, a period of activity sets in, greater in proportion than at any other period of life. We must not oppose this activity, but we must control it. Young children should always be superintended in their play by some responsible person. When the

mother has no one of this sort to help her, the little ones should be kept as far as possible within sight and hearing.

The question of allowing children out with coloured servants is one of great difficulty. It would be unfair to say that there are no trustworthy ones among the natives and coloured inhabitants of our Colonies, but there is no doubt that we incur a very serious responsibility when we hand over our children to the care of those whose standard of morals and manners is very far beneath our own. Many mothers contend that their children get no harm from coloured servants ; that the natives recognize the difference of standard between our children and themselves, and conform to it while with their charges. There may be something in this, but I recall the remark of a Salvation Army lass, who said, with better logic than grammar, "We can't teach people better nor what we are ourselves." I never see a group of fair-faced little children sent out for their morning's play with only a coloured girl to answer their everlasting questions and to receive their childish confidences without regretting deeply the exigencies of domestic life which so often make such a condition of things necessary.

Before leaving this subject, let me remind you that our Colonies are alien soil to the majority of our children, and that they consequently need more care and supervision than they would at home. Coloured servants are very difficult to instruct in such matters as sheltering the little heads from the sun, turning the baby-carriage with its back to the wind, and so forth.

If any Natal mother doubts this, she has only to go to the nearest street corner, or, still better, to the police station—the “Club” of the cheerful and gregarious native, for which they seem to have the same predilection as do the little maids-of-all-work for churchyards at home. Here on any sunny afternoon she may see half a dozen nursery maids fore-gathering with their kind of both sexes, employed in animated exchange of repartee, while their neglected charges loll sleepy, unprotected heads over the sides of their go-carts, or stand white-faced and weary, with hats falling back on their necks, at the sides of their inconsequent protectors.

A good many sudden night attacks of feverishness and sickness, occurring in delicate children, may be traced to these “outings” in charge of untrustworthy servants.

Rest.—All children under five should be encouraged to take a good morning sleep, or at least an hour’s rest before midday dinner. Young children sleep very well out of doors, but older ones find too many distractions outside and should be taken into a bedroom for this purpose. The removal of dress and shoes and the drawing down of the blinds will ensure a comfortable, refreshing sleep.

Clothing.—Having regard to the changeableness of the climate throughout most of our Colonies, we cannot insist too strongly upon the superiority of woollen and silk clothing over cotton and flannelette. For the latter I have nothing but condemnation, since it ensnares the inexperienced mother by its warm and

comfortable look into using it for the layette as well as for older children. The only advantage it has over ordinary cotton and cambric is its slightly looser texture, which allows of freer ventilation, but this advantage is more than counteracted by its highly inflammable properties, which render it dangerous for nursery use.

Many mothers do not realize that silk and woollen material are both *cooler and warmer* than cotton, owing to their light, loose texture. The initial expense of providing a child with woollen outfit soon repays itself in the ease with which it can be "got up," and by the lasting properties of vyella and whinsey, if washed at home. For the summer months silk overdresses are both cool and pretty. Both boys and girls should be dressed in woollen "combinations" as soon as baby habits are left behind. The best pattern for girls is that which is closed completely below, with a back flap fastened by buttons at the waist or a little below. This pattern is also a good one for their sleeping suits. Petticoats are best made of vyella or nun's veiling. One is quite sufficient for ordinary wear, while in cold weather a knitted woollen one may be added. No "stays" are necessary. A sailor dress of serge or flannel is a most useful costume for both boys and girls for every-day wear. Velveteen also makes pretty and serviceable costumes for cooler days. Children protected by rational clothing on these lines will suffer very little from changes of temperature, more especially if they are allowed to discard shoes and stockings whilst playing about on damp days.

Headgear.—It is important to protect a child's head by a fairly thick covering during the heat of the day. Embroidered hats and bonnets through which the hair glints are pretty, but unsafe. Plain, closely-woven straw is the best material for children's hats.

Night Attire.—All children should sleep in flannel pyjama suits and lie between soft blankets, which are well aired in the sun for an hour or two each day. The use of sheets is not desirable unless made specially of woollen material.

CHAPTER III

NATURAL AND ARTIFICIAL FEEDING

The Nutrition of the Infant

A YOUNG mother should never take upon herself the responsibility of deciding that her milk is not suitable for her baby. If the little one, for any reason, does not thrive, she should seek the advice of the doctor, and only after the strictest investigation of the case should artificial feeding be substituted for her own milk.

Difficulties met with in Natural Feeding.—In large maternity institutions where there are several mothers with babies of the same age, investigations have been made as to the exact composition of the mother's milk, and the analyses made have shown that the milk of different mothers varies within wide limits, all of them being healthy, and all able to nurse their children successfully. We must conclude, therefore, that each mother's milk is specially suitable to her own infant ; for although the analysis showed that the milk of certain mothers was half as rich again in fats and albuminoids when compared with

that of others, all the children were found to be thriving equally well, and all were gaining weight at the same rate.

The composition of mother's milk is influenced by her habits, diet, environment, and circumstances; and for this reason it is thoroughly unscientific for a woman to decide that her milk does not agree with her infant until she has satisfied herself and her medical attendant that no modification of her way of living will improve matters.

The *average* composition of human milk is as follows:—

In a hundred parts of milk there are—

87·6 per cent. of water,			
4·0	„	„	fat,
1·2	„	„	albuminoids and proteids,
7·0	„	„	milk sugar,
0·2	„	„	salts.
<hr/>			
100·0			

The different uses of these foods are as follows:—

Fats, or Hydrocarbons.—To this class belong cream, butter, fat of meat, cod-liver oil, etc. One great use of fat is to produce heat, and also to supply muscular energy. Fat is like the coal used in an engine.

Proteids, or Nitrogenous Foods.—In this class we get the albumen, or white of egg, the curd of milk, the flesh of animals, the gluten of flour, and the substance of peas and beans. The chief use of proteids is to build up the body, and to supply material for its growth, in addition to making good its wear and tear.

Carbohydrates, or Sugars.—Under this class come various kinds of sugars and starches, such as are found in potatoes and beans. These are used in the body very much like fats, but they do not take the place of fat—a fact which is proved by the lack of constitutional vigour in many “condensed-milk” babies, in whose diet there is a large excess of sugar and a marked deficiency of fat.

Salts.—These consist of phosphates of lime, soda, sulphur, magnesia, and iron. They are used in the bones, brain, and other organs, and are necessary to the growth and soundness of the body.

The proportion of any or all of these may vary, but the most important differences occur in the *fats* and *proteids*.

Rules to be observed by Nursing Mothers

Regularity in the Hours of Feeding is a most important factor of success in nursing. If a child is put to the breast too often its stomach gets no rest, while an irritable condition of the breasts is set up by which the character of the milk is altered. Under these circumstances too much albuminoid is produced, which is difficult for the infant to digest. On the other hand, if the mother feeds at too long intervals, her milk is watery, and does not satisfy the baby's appetite.

Diet.—The diet of a nursing mother should be plain and non-stimulating. Investigations have been

made recently in order to ascertain whether a special kind of diet affected any particular constituent of the milk, and it has been found that only the *fats* can be definitely affected in this way. These were increased when eggs, cheese, and meat were taken in abundance. The actual taking of "fats" in the form of fat, cream, butter, etc., did not increase the percentage of fat in the milk.

These inquiries went to show that an ordinary *mixed* diet of wholesome articles, including well-cooked vegetables and fruits, produced the most satisfactory results in the nursing mothers. All foods difficult of digestion should be avoided—such as pastry, pork, pickles, and all condiments. Certain kinds of vegetables, especially potatoes, appear to disagree with some infants, but it is not necessary to forbid them to every mother on this account. The doubtful things must be taken in small quantities at first, and if distress to the infant follows, their use can then be given up for a time. Milk, fish, chicken, eggs, bread, butter, milk puddings, with such fruits and vegetables as agree with the child, should form the staple diet of the nursing mother.

Alcohol.—Many nurses recommend stout as a means of increasing the quality and quantity of the milk. In these days of scientific analysis of milk, it has been proved that unless the mother has the "alcoholic" habit—*i.e.* saturates her system with it—the alcohol thus taken cannot be traced in her milk at all. The results in my own practice have convinced me that barley water added to milk, or given as a

drink by itself, increases the quantity of milk unmistakably, as do porridge, "grape nuts" and milk, etc.; but whether this fact could be proved scientifically, I am unable to say. Certain forms of stimulant may *indirectly* increase the secretion of milk by aiding digestion and by improving the appetite, but they should never be taken excepting under medical advice.

Exercise is quite as important a factor as diet in successful nursing. Regular walks should be taken about the garden as soon as convalescence is established, and throughout the whole nursing period a daily walk up to the point of moderate fatigue should be the rule in the cooler hours. Mild physical exercises, with or without dumb-bells, are extremely useful to the same end. A sedentary life, combined with hearty meals in which meat plays an important part, will produce a milk too rich in both albuminoids and fats, with the result that the child will suffer from indigestion and diarrhœa. On the other hand, if *too much* exercise is taken while the diet contains only a moderate quantity of nitrogenous food, the milk will be watery, and will fail to satisfy the infant.

Drugs.—Certain drugs have a known effect on the milk of nursing mothers; these may influence some infants and not others. A good many purgatives taken by the mother will affect the infant, and it is often a matter of difficulty to decide which of them is most suitable for use under these conditions. Castor oil seems, on the whole, the safest; cascara and vegetable laxatives sometimes do and sometimes do not

affect the infant. All saline purgatives, such as Epsom salts, magnesia, Eno's, etc., tend to dry up the milk, and are, therefore, unsuitable for use at these times. The fewer drugs of any sort taken by a mother during the nursing period the better, on account of their possible appearance in the milk, to the detriment of the child.

Contra Indications to Nursing.—There are certain definite states of health in which nursing must be forbidden in the interests of both mother and child. In such cases the physician will lay down the law at once, but it may be useful to mention some of them for the guidance of young mothers in lonely districts.

Constitutional Debility.—These include not only definite illnesses, such as consumption, kidney troubles, etc., but also a *low general average* of health, in which prolonged digestive troubles have produced a condition of malnutrition bordering on chronic invalidism. Under this head must be classed cases of anæmia (poorness of blood).

Nervous Affections.—Any tendency to "fits" would render the mother an unsuitable nurse to her child. Women whose nervous systems are liable to get the better of them on the slightest provocation are unsuitable as nursing mothers, though in many cases the desire to be good nurses to their children acts as a powerful incentive to the needful self-control, and ends by curing the condition. A medical friend of great experience has passed on to me his observation that tearful mothers are responsible for the *green*

motions in their infants, which occur as the result of indulgence in this form of emotion.

When *pregnancy* occurs in the course of lactation, nursing must be given up in the interests of the new little life as well as of the mother.

Sudden shocks, such as a bereavement or the strain of nursing a sick member of the household, will frequently so alter the character of the mother's milk as to render it an undesirable form of nourishment for the child.

Mixed Feeding.—If the mother has not enough food for her infant it is better to give it what she has, in the absence of any of the contra indications above stated, and to supplement by a bottle as often as necessary (see "Artificial Feeding"). The secretion of the breast increases with use, and it is an undoubted gain to the infant to get even a little of the nourishment which nature provides for it.

Wet Nursing hardly comes within the sphere of practical politics in most of our Colonies, so I shall only mention it to say that it is adopted with great benefit in some cases of malnutrition, but should never be had recourse to without a thorough medical examination of the intended foster-mother.

Artificial Feeding

When it has been decided for some sufficient reason that a baby must be brought up altogether by hand, the choice of its nourishment is of the greatest importance. Many are the pitfalls lying in wait for

the bottle-fed infant if the mother has not some clear, definite guidance to which to pin her faith. The young mother who takes the proffered advice of every sympathizing friend will probably try six or eight different "foods" in as many months, and will only succeed in making her baby's stomach intolerant of even the most readily digested form of nourishment. The victim of such a course of experiment frequently comes under definite medical treatment towards the end of its first year, with its digestion completely out of gear, and with a stomach only able to retain as much nourishment as an ordinary infant of a few weeks. The recovery of such an infant, under a suitable *régime*, is a long, tedious process, while its general growth and development may remain below the average for years to come.

One fact regarding artificial feeding cannot be too strongly insisted upon: *There is no perfect food for hand-fed babies.* The more nearly the nourishment provided for an infant approaches to the composition of human milk, the better it is likely to fulfil the infant's requirements.

In discussing varieties of artificial feeding, it is necessary to state at the outset that we must not be satisfied with the fact that any special food is easily digested, nor imagine that because the baby never vomits it nor passes it in an undigested state, it therefore represents a "perfect" food.

Many foods "agree" with an infant in this restricted sense better than fresh cows' milk, for the simple reason that there is very little tissue-forming material in them

to digest. Hence their popularity with busy mothers, who find the addition of boiling water to a "prepared food," in certain definite proportions, an easy and rapid method of satisfying the infant's appetite.

A suitable food for infants must fulfil all the following conditions :—

1. The child's gain in weight must be steady and proportionate to its age.

2. The limbs and back must gain in strength and the tissues of the body become firmer, side by side with its gain in weight.

3. The child must develop the "tone" or "resistance" in its tissues necessary to tide it over any acute illness or extra strain upon its system, *e.g.* dentition.

Foods which do *not* fulfil all these conditions :—

1. **Dried and Prepared "Milk Foods."**—Of these there are an innumerable host.

All these *milk foods* are open to certain objections inseparable from their preparation. The majority of them are made from milk which is condensed and sweetened, and then dried by evaporation, with the addition of some variety of flour in which the starch has been partly converted into a form of sugar (dextrine). The great objection to these foods lies in the fact that they contain far too much cane sugar and too little fat. Nearly all of them contain starch also, which is an unsuitable article of diet for any infant under six months of age.

A few "foods," *e.g.* Allen & Hanburys' No. 1, and Horlick's Malted Milk, contain no starch; but the fat is deficient and the sugar in excess. The proteid

element is also deficient in many of these foods when diluted in the proportion advocated by the makers. It therefore follows that none of these so-called "Perfect Infants' Foods" fulfil all the requirements of the case.

Condensed Milk.—This is cows' milk from which a large amount of the water has been removed by evaporation. The milk is usually reduced by this process to one-third of its original bulk, so that two parts of water to one of condensed milk should bring it up to the ordinary standard of fresh milk. So much sugar has to be added, however, to make it keep that it often has to be diluted with twelve or fourteen times its volume of water to bring the sugar down to anything like a reasonable amount.

As a result of this dilution, the "fat" is practically a minus quantity when the milk is ready for the infant's use, and the albuminoids or proteids are also very deficient, while the cane sugar is still in excess.

Unsweetened Condensed Milk is a very superior form of nourishment for an infant to the ordinary brands of condensed milk, many of which are very inferior, having been prepared from milk previously wholly or partially skimmed. Nevertheless, even this form fails to meet all our requirements, as, when diluted sufficiently to be suitable for infant feeding, it is deficient in fats, unless, as in some cases, cream is added before each tin is sealed up.

The Result of Feeding Babies on Condensed Milk.—One of the most scientific investigators of this subject has recently summed up his conclusions

in the following words: "There is no doubt an immense amount of harm is done to infants by the indiscriminate use of such milks. Babies fed on them may look fat enough, but they are pale and flabby, and often suffer from rickets. 'Fatness' produced by abundance of sugar with milk is by no means a sure sign of health, and the pictures of such fat but flabby infants so freely spread abroad by makers of condensed milks are deceptive."—

HUTCHENSON. We may add to this statement that infants thus fed are very apt to fall victims to intestinal catarrh.

Briefly, therefore, we may sum up our conclusions as follows. No *proprietary food* can be reasonably called a "perfect food" for infants, nor have they any advantage over the best brands of condensed milk. Their prolonged use may seriously affect the child's growth and development. A great authority states his opinion as follows: "There are two diseases, *rickets* and *scurvy*, which have so frequently followed their prolonged use that there is no escaping the conclusion that they were the active cause."—HOLT.

As regards *condensed milk*, the *unsweetened* makes a far more suitable food than the most reliable brands of ordinary condensed milk; but even this cannot be considered an ideal diet for an infant, and should only be used when fresh cows' milk is not obtainable. I quote the words of another authority on this subject: "Clinical observation has proved that a prolonged, exclusive diet of condensed milk often results in such nutritional disorders as anæmia, rickets, scurvy, etc.

Moreover, the infant, while apparently healthy, lacks vital resistance, and easily succumbs to any infectious disease he may contract."

When may Condensed Milk and Proprietary Foods be used?—1. In cases where fresh milk is not obtainable, or where it disagrees with the infant when used with simple dilution, should the means of modifying it *not be* at hand, unsweetened condensed milk may be used instead for a time ; or, if no reliable brand of milk can be got, such foods as Allenbury No. 1, Horlick's Malted Milk, etc., are good *temporary* expedients.

2. As *additions* to cows' milk after the first few months. A good many "foods" are ordered to be mixed with cows' milk. Of these, Allenbury's III., Mellins', and Bengers' are examples of those most suitable before the ninth month, on account of the modification of their starchy element ; while Robinson's Patent Barley and Groats, Chapman's Wheat Flour, Ridges' and Neaves' "Frame Food," and many others should not be begun until towards the end of the first year, on account of the starch contained in them.

3. Where the infant's digestive powers fail temporarily, and even "modified" milk fails to agree, a condition of things sometimes met with when a child has been subjected to a diet from which milk has been excluded for the time, these preparations, well diluted, may tide over a certain interval during which the stomach is regaining the necessary "tone" to enable it to assimilate a more perfect "tissue-forming food."

Fresh Cows' Milk.—We have, I trust, succeeded in convincing ourselves that fresh cows' milk, when obtainable, is the best and safest substitute for mother's milk. The milk of asses and goats is in some respects more suitable than that of cows, as they more nearly approach the composition of human milk, but owing to the expense and difficulty of obtaining them, they are only ordered by the physician in the case of specially delicate infants, whose digestive functions are much below par. There are, however, certain important differences in the composition of cows' and human milk, and they can be best expressed in a tabulated form.

Human milk contains in 100 parts—				Cows' milk contains in 100 parts—			
Fat	...	...	4'13	Fat	...	...	3'75
Lactose	...	...	7	Lactose	...	...	4'42
Proteids	...	...	2	Proteids	...	...	3'76
Salts	...	...	0'2	Salts	...	...	0'68

We notice, therefore, that cows' milk has less fat and less sugar than human milk, while it has more proteids and more salts.

Other differences are—

Human milk turns litmus paper blue, *i.e.* it has an alkaline reaction.

Cows' milk turns litmus paper red, *i.e.* it has an acid reaction.

The "curd" of human milk, which is formed by the action of the gastric juice on the albuminoids or proteids, is loose and easily digested; that of cows' milk is greater in amount, firm and difficult of digestion.

Human milk is *sterile*—that is, it contains no bacteria. Cows' milk is non-sterile—that is, it contains numerous bacteria by the time it reaches the consumer.

Modification of Milk

In order to modify fresh cows' milk so that it shall approach more nearly to the composition of human milk, the contrasted tables just given must be borne in mind.

1. The *proteid* element is nearly twice as much in cows' milk.

2. The *lactose*, or milk sugar, is deficient by over one-third in cows' milk.

3. The fat is deficient by about one-fifth.

4. The reaction must be changed from acid to alkaline.

5. The bacteria must be destroyed before the milk is fit for the infant.

The *simplest way in which to fulfil these conditions is as follows* :—

1. Dilute the milk with plain boiled water or barley water to reduce the proteids to their right proportions.

2. Add "sugar of milk," *not* cane sugar, in the proportion of fifteen grains to the ounce of food. This can be obtained in packets of the chemist.

3. Add raw cream in the proportion of a tea-spoonful to the ounce of food.

4. Add lime water in the proportion of a tea-spoonful to two ounces.

5. Sterilize the mixture by standing it in a pan of boiling water placed on the stove for forty minutes. Then cool rapidly under a tap.

Such a mixture approaches very fairly to the composition of human milk, and many children thrive very well on it. The milk must, however, be diluted with *twice* its volume of barley water or plain boiled water during the first month or six weeks, while after the fourth month a hardy child may have two-thirds milk to one of barley water.

Although we cannot chemically prove that barley water, oatmeal water, or rice water, added to milk, breaks up its curd into finer and more digestible particles, yet it is a matter of practical experience that the addition of one or other is of value to the infant.

Where cream cannot be readily obtained, half a teaspoonful of Kepler's Malt is sometimes added to each "feed" given, but where the milk is rich this may be dispensed with. The child's weight and general nutrition will be our best guide as to the success or otherwise of the food thus prepared.

Amounts of Food to be given during the First Six Months

For the First Week.—One to one and one-half ounces may be given to the child every two hours during the day, and when awake at night. Children, even at the first, vary in their capacity, and a premature baby may not be able to take more than half an ounce

at a time. In this case, under the doctor's advice, more frequent feeding may be resorted to.

Second to Fourth Week.—One and one-half to two ounces every two hours; but the infant should be encouraged to sleep from four to six hours at night.

Second and Third Months.—Two and one-half to three and one-half ounces every two and one-half hours. The same interval of rest to be observed at night.

Fourth Month.—Four and one-half to five ounces of food, which may now be made in the proportion of two of milk to one of barley water, every two and one-half hours. If possible, a six hours' interval of rest must be secured at night—between 11 p.m. and 5 a.m.

Fifth Month.—Five to five and one-half ounces of food at intervals of three hours by day—interval of rest at night as before.

Sixth Month.—Five and one-half to six ounces of food at intervals of three hours, with the same nightly interval.

Other Ways of Modifying Milk

The above method may be described as a "rough-and-ready" way of modifying milk, and although it answers very well with a large number of children, especially those brought up on farms or in healthy country districts, the *unaltered curd* often proves a stumbling-block to delicate babies. If, after a short

trial of it, symptoms of indigestion occur, a more elaborate method must be resorted to.

One of the most satisfactory ways of reducing the amount of curd is as follows :—

Take a *quart* of good milk, as soon as possible after milking, and let it stand in a large shallow basin, lightly covered, in an ice-chest, or, failing this, surrounded by water in a cool place for twelve hours. At the end of this time take a graduated pint-measure glass (all chemists supply them) and carefully skim till *six ounces* is registered in the measure glass. Then, for a child under four months, add as follows, to make sufficient for twenty-four hours :—

			Over three months.	Under three months.
Cream ... ..	...	6 ounces or	4 ounces.	
Fresh cows' milk	...	3 „ „	2 „	
Lime water ...	...	3 „ „	2 „	
Sugar of milk ...	...	2 „ „	1½ „	
Boiling water ...	...	22 „ „	15 „	
		—	—	
		36 ounces	24½ ounces.	

The smaller proportion will be needed in the first two months, and the larger one in the third and fourth months.

To make enough for a child over four months, for twenty-four hours :—

Cream ... ..	..	...	6 ounces.
Fresh milk	...	...	12 „
Lime water	...	...	2 „
Sugar of milk	...	...	2 „
Water ... ..	...	...	18 „
			—
			40 ounces.

It will be readily seen that in these formulæ, especially in No. 1, the "curd" of milk is reduced to a very small proportion, while the necessary "fat" is supplied by the cream.

The following is a useful table of average weights of children at different ages up to the first year, and the amount of food to be given :—

	Weight.	Amount per meal.	No. of meals in 24 hours.	Total Quantity in 24 hours.
	lbs.	ozs.		ozs.
Birth to 6 weeks ...	6 to 8	1 to 2	10	10 to 30
6 weeks to 3 months	8 ,, 11	3 ,, 4	8	24 ,, 32
3 to 6 months ...	11 ,, 14	4 ,, 5	7	28 ,, 36
6 ,, 9 ,,	14 ,, 16	6 ,, 7	6	36 ,, 42
9 ,, 12 ,,	16 ,, 24	8 ,, 9	5	40 ,, 45

Even the amount of "curd" in this formula cannot be digested by some infants, and for them some partially digested preparation is necessary.

Predigested Milk.—This must always be looked upon as a *temporary expedient*, as children fed for long periods on predigested milk tend to lose their natural powers of digestion (*Form. XVI.*).

I have gone into this subject at some length because I have in my mind young mothers in isolated places, out of reach of efficient medical aid. Those in towns will do well to consult their usual medical attendant before making any special change in their infant's diet, for, after all, no absolute rule can be laid down with regard to artificial feeding, and each case, to a certain extent, must be treated on its own merits. Every

month brings new investigations in the subject before the medical profession through the means of medical journals, and thus places them in a position, if they conscientiously take advantage of their opportunities, to obtain a grasp of the subject which non-medical people, however experienced in the rearing of their own children, cannot have ; moreover, the non-scientific mind is essentially conservative, and these "mothers in Israel" who proffer advice to the young and inexperienced mother find it difficult to depart from methods which have led to good results in their own families. Much valuable help and comfort can be given by them, but in cases where such a vital point to the infant as a change in its diet is in question, the physician should be the court of final appeal.

CHAPTER IV

DENTITION

“TEETHING” is one of the bugbears of young mothers, and therefore we shall devote a special chapter to this subject.

The average infant cuts its first tooth in its seventh or eighth month, but perfectly healthy babies may cut one or more teeth as early as the fourth month, and, on the other hand, may celebrate the first anniversary of their birthday in a toothless condition.

The process of cutting the temporary teeth, or, as it is usually termed, the *Period of the First Dentition*, extends from the middle of the first to the middle of the third year, at the end of which time each jaw should be provided with ten teeth, making twenty in all. An examination of a child's mouth at two years and a half, provided it is not “backward” in the matter of teething, shows in each jaw four middle incisors, or “cutting” teeth; two canine, or eye teeth—one on either side of the incisor; and two molars, or “grinders,” behind the canine teeth on either side. The order in which they appear is as follows:—

Two lower middle incisors in the seventh or eighth month. Then, after a rest period of a few weeks—

Four upper incisors, usually in the ninth to tenth month.

These are separated by an interval of another few weeks from the third group.

Lower lateral incisors and upper and lower front molars. These are cut about the same time, during the twelfth and thirteenth months.

After this there is usually about six months' rest.

Fourth group—the four eye teeth—from the eighteenth to the twentieth months.

Fifth group—back molars—between the twenty-fourth and thirtieth months.

Irregularities in Teething.—Not all healthy children cut their teeth exactly in this order, nor precisely at these times. The causes of such irregularities or delays in teething are not easy to discover, and in many cases it does not seem important to do so. But should great delay occur, *i.e.* a child remain toothless as long as the fifteenth month, medical advice should be sought and the question of diet carefully gone into, especially in regard to its bone-forming properties.

Permanent Teeth.—The first permanent teeth appear at about the age of six. These are the *first permanent molars*. They are cut behind the temporary teeth, and do not take the place of any of these. The permanent teeth are cut in the following order:—

First molars	...	...	...	at the age of 6 years.
Central incisors	...	...	”	” 7 ”
Lateral incisors	...	...	”	” 8 ”
Anterior bicuspid	...	...	”	” 9 ”
Posterior	...	...	”	” 10 ”

Canines ...	...	...	...	at the age of 12 years.
Second molars ...	...	...	”	” 13 ”
Third molars (“wisdom teeth”)	”	”	”	16 to 25 years.

Process of tooth-cutting in detail—

The temporary teeth are partly developed in the jaw at the time of birth, and their shape can be noticed when an infant's jaw is carefully examined. Each tooth is contained in a little “sac,” or membranous bag. As the tooth grows, the “sac” containing it grows too. The tooth becomes harder, and finally “cuts” through the top of the sac, and shows itself on the surface of the gum.

The part played by dentition in the hygiene of the infant is the subject of much dispute. It was the custom twenty years ago to attribute a hundred and one ills occurring during the “teething” period of the infant's life to the process of “teething” itself. Modern opinions, on the other hand, have been advanced, refusing to allow that dentition has any effect whatever on the infant's health.

The truth, I think, lies somewhere between these two extremes of opinion. The first dentition may be regarded as a cycle of change in the infant's life, much as puberty is in the older child. At either time the finely adjusted equipoise of the nervous system is more likely to be upset by comparatively slight causes, and this disturbance of balance tells on the weakest part, or, in other words, at the point of least resistance. This, I think, explains the terms we so often hear mothers use: “My child always cut his teeth with bronchitis,” “with diarrhœa,” etc. Many mothers still

hold the belief that it is dangerous to interfere with these troubles if they occur during the teething period. This is, however, a dangerous theory, when we remember that "teething" takes two years from first to last, and that twenty teeth are cut in the time. It is only reasonable to suppose that many common diseases may overtake the child during this period quite independently of the teething process; these should receive prompt attention, and if they fail to yield to simple domestic remedies at once, medical advice must be sought. The rational treatment, therefore, of a teething child consists in keeping it as near the "high-water mark" of health as possible in the following ways: By regular and judicious feeding; avoidance of over-fatigue to brain or body; plenty of sleep; and that best of all sedatives, *fresh air*. A daily evacuation of the bowels must be induced. Sudden chills must be guarded against, as they tend to lessen the child's resisting power. Under such a *régime* the necessity for special treatment during dentition will be the exception, but should any unfavourable symptom occur, the advice of the family physician must be sought with as little delay in "teething" children as in others.

Before leaving the subject of dentition, it will be wise to say something about the care of the teeth and of the evils which follow their neglect. Many people think that the first teeth never need a tooth-brush; but it is of great importance to clean them regularly, at least twice daily, bedtime being the most necessary time. A young infant's mouth during teething

sometimes displays a thoroughly unhealthy condition : the gums are red and swollen and "spongy"-looking, and the site of an advancing tooth is covered by little white ulcers. This condition of the mucous membrane becomes a danger to the child, by interfering with the taking of food, or by infecting it in such a way as to cause diarrhœa. A mouth-wash (*Form. V.*), when this occurs, should be used several times a day, and the mouth and gums thoroughly cleansed with it by dipping the finger, around which a soft piece of cambric has been wrapped, into the mouth-wash and lightly passing it over the spots.

Some infants' teeth become discoloured and begin to crumble away almost as soon as they are through. This points to some constitutional weakness of the infant, or to unsuitable feeding during the time the teeth were forming in the sac. Medical opinion should be sought in such a case, as it is important to preserve the temporary teeth in order that the jaw may develop to receive the permanent ones.

Young children should be taught early to masticate their food well, and, when the teeth are complete, hard crusts and biscuits may be given them for this purpose. An important part of digestion takes place in the mouth itself before the food reaches the stomach, and the proper mastication of the food influences the pouring out of gastric juice by the glands of the stomach, in readiness to act upon the food which is coming to it.

Carious or Decayed Teeth are quite as much a source of ill-health when occurring in the temporary

as in the permanent teeth. Food received into the cavity of a decayed tooth soon decomposes, and fresh food coming into contact with this becomes infected with the products of decomposition, and may set up irritation in the stomach and bowels. In fact, there is good reason to suspect that the infection of tubercle and other diseases can be traced to carious teeth as a starting-point, or, in other words, these cavities are "receiving stations" of bacterial infection. The mouths of young children should, therefore, receive constant attention, and should a cavity be detected in any first tooth, the aid of a competent dentist should be sought without delay.

I am indebted to a dental friend for the following practical exposition of the care of the teeth in children:—

"The care of a child's teeth must commence immediately after its birth. The mother must take into her system a sufficiency of lime and phosphate salts to ensure a good supply to the child she is nursing. These necessary ingredients are found abundantly in brown bread, whole-meal, oatmeal, ground maize (mealy meal), beans, and peas, and such fruits as apples. They may also be taken in a more concentrated form, of which *chemical food* is a good example.

"The cleansing of babies' teeth should be as regularly performed as the washing of their bodies, and should be commenced as soon as the first one appears. Directly the child is old enough to learn, the habit of regularly brushing the teeth after every meal should

be taught. The use of a tooth-powder is only necessary at intervals, say, once a week. The constant, daily use of a powder is liable to produce a harmful effect upon the enamel. As a rule, some alkali is necessary to counteract the acidity of the saliva, so often present in young mouths, which is very liable to produce extensive decay. *Milk of magnesia*, or *bicarbonate of soda*, a teaspoonful or so of each in half a tumbler of water, will be found useful for this purpose. The tooth-brush may be dipped in the mixture, and it may also be used to rinse the mouth with.

“It is a great mistake to suppose that because the first or milk teeth are soon shed, it is not necessary to take any care of them or to have them filled should they decay. Teeth are supplied for a definite purpose, viz. the thorough and complete mastication of the food. Were their purpose better realized and carried out, especially by the young, we should find a much more satisfactory condition of things, both in the mouths and also in the general health of children. No drinking should be allowed at meal-time. The habit of thoroughly chewing the food must be insisted on.

“The loss of the temporary teeth before their time prevents the proper expansion of the gums and jaws, with the result that the permanent teeth have insufficient room for their growth and become crowded into all sorts of malpositions, to the extent, sometimes, of producing real facial deformity. When this condition of irregularity of the teeth occurs, the advice of the

dentist must be sought, as it is possible to expand the jaw, and move the teeth by degrees into their correct position. This is a tedious process, taking weeks, sometimes months, for its completion. In children over fourteen years of age, as a rule, the jaw-bones are set too firmly to allow of this operation being carried out with success.

"It is advisable that the teeth of all children should be regularly inspected by a dentist, and cavities occurring, even in first teeth, filled as soon as they appear. This is a very important point, for decay once started proceeds rapidly, and only the prompt filling of a cavity will save the child from severe and repeated toothache. Periodical visits to the dental surgery will also save parents from falling into the very common error of mistaking the *first permanent molar*, which comes at six years of age, for a temporary tooth.

"The first permanent molars appear at the back of the temporary set before any of the milk teeth have been shed, and they serve for the process of mastication while the temporary teeth are being replaced by the permanent ones. They are very important teeth indeed, and should be taken great care of.

"One is constantly being asked, 'Are sweets bad for the teeth?' To which we may reply, 'Not if they are eaten in moderation and at meal-times; but they most certainly are if they are indulged in at all times during the day.'

"It is very commonly supposed that the *taking of*

drugs has a deleterious effect upon the teeth. This statement is not altogether upheld by observation. The condition of the system which requires the use of any particular drug has probably more to do with the decay of the teeth than the drug itself.

"*Cases of severe toothache occurring in neglected mouths* may be relieved by such a simple remedy as hot and sometimes cold water held in the mouth. If the cavity is large enough, a plug of cotton wool with a little oil of cloves or carbolic acid will ease the pain. Care must be taken with these drugs or they are very liable to burn the mouth. These measures are only of a very temporary nature, and the child must be taken to a dentist as soon as possible.

"*The prevention of toothache* consists in systematic inspection of the teeth.

"The following *three golden rules* should be taught early, and practised throughout life:—

"1. Thorough cleansing of the teeth night and morning, especially at night. After every meal is better still.

"2. Thorough mastication of all food, and the avoidance of all liquids at meals. Liquids should be taken an hour before or two hours after a meal.

"3. Regular dental inspection every three or six months."

CHAPTER V

MENTAL DEVELOPMENT AND EARLY TRAINING

Mental Development

So far we have concerned ourselves chiefly with the physical growth and development of infancy and early childhood. But side by side with this occurs the growth and development of the mind. An infant starts life incapable of any but the most primitive "correspondences" with the world into which he is born. All his movements are automatic for the first few weeks of life. He can breathe and cry. His heart beats rhythmically. His excretory system acts at intervals, and he has the power of sucking and of swallowing. All these actions are "reflex," that is, they depend upon some stimulus apart from volition or "will." Certain purposeless movements of the hands and limbs are also observed. If a finger is put into the child's hand the little fingers close round it with a surprising grip. Some scientists see in this tenacity of grip a proof of our descent from apes.

After the first six or eight weeks the watchful mother notes by certain signs that the infant's mind

is awaking. His movements become more purposeful. An attempt is made to raise the head as the child lies in his nurse's arms, in order to follow with the eyes a bright light or gaily-coloured object. Faces seem to become familiar, and the mother's face and voice call out a flickering smile. A little later the infant finds a means of expression in a laugh or crow.

As the days go on new evidence is constantly forthcoming of the further development of the mind, side by side with bodily growth. The infant begins to assert his will and to show anger when opposed. He holds out his hand for objects presented to his vision, and makes more or less successful attempts to grasp and hold them. About the sixth month he begins to sit up on the nurse's knee, but for the next three months he can only do so for short periods, unless the back is well supported. By the ninth month a baby will often show signs of wishing to get on to his feet, and some children, if placed on the floor, will attempt "creeping" movements on hands and feet. It is not until early in the second year, however, that the infant's walking powers become properly developed.

The Desire to Imitate is also shown about the ninth month. It is possible that this factor is at the bottom of the child's first attempts to "find his feet," as we say. The nurse knocks a spoon against a cup, and the baby seizes it and attempts to reproduce the noise. Sensitiveness to the expression of mother or nurse is often shown about this time—a smile begets

a smile, a sharp tone causes the little face to quiver and the corners of the mouth to droop.

An infant of seven months showed signs of great distress whenever his little sister, two years his senior, cried. Two months later he had become philosophic, and seemed rather to enjoy than otherwise this open expression of her woes.

Thus little by little the sum of evidence is made up which proves to us that we have a mind to train as well as a physical being to care for, and it is necessary that we should seek for some definite principles to guide us in this early training of our children.

It may be useful here to summarize the development of the infant, month by month, during the first two years of life.

Progress of Early Development from Month to Month

First Month. — Four-fifths of each twenty-four hours is spent in sleep during the first few weeks of life. During the day-time the infant rouses to take food, but often drops asleep again at the conclusion of its meal. It frequently sleeps for five or six hours during the night, and this excellent habit should be encouraged, as much for its own as for the mother's sake. There is practically no mental development at this age. The infant's movements are involuntary, *i.e.* there is no will-power at the back of them. Still it has a certain consciousness of external things: a sudden noise may make it start; a bright light, in the

second or third week, will attract its eyes. All movements and actions appear to be of the reflex type, and are the result of external stimulus. The sensation of hunger causes a cry. The aimless movements of the hands and feet are probably caused by some external sensation—cold, or the discomfort of some portion of clothing ; flatulence or the sensation of sleepiness may make it yawn ; the reflex action of sucking is probably caused by the sensation of hunger.

Second Month.—The infant sleeps less and shows some signs of awaking intelligence. It still requires food every two to two hours and a half by day, and should sleep five or six hours at night. Bright objects held before the eyes attracts it. It begins to know its mother's voice and will smile in response. Its cry is louder, and the cry of pain can be distinguished by its sharper note from that of hunger.

Third Month.—The child will go two and a half to three hours between meals, and should still sleep soundly from about 11 p.m. to 5 a.m. It "takes notice" of those around it, and will lie in its cot, when well fed and comfortable, crooning and babbling to itself. Its movements have become voluntary, and it kicks and waves its hands to show pleasure. It is now susceptible of some training in orderly habits, when regularly "held out" for the purpose of evacuating the bladder and bowel. An average infant has gained from four to six pounds in weight by the end of its third month.

Fourth Month.—The child still takes food every two and a half to three hours during the day and

sleeps several hours at night. He can now take as much as five ounces of food at a time. His head no longer "wobbles" over, but can be held erect if the back is supported, and he now begins to seize things held out to him and conveys them promptly to the mouth. He can distinguish between familiar faces and those of strangers, and sometimes resents being taken by the latter. Two or three sleeps are still taken during the day, but the rest of the time the infant is lively and alert.

Fifth to Ninth Month.—The infant grows quickly in intelligence and vigour. He requires food every three to three and one-half hours, and can take from six to eight ounces at a time. He usually gets a morning and afternoon nap, and should sleep all night. If propped up in a high chair at the table, he can pound on it with a spoon or block to his own entertainment. He now recognizes familiar faces, and welcomes their approach. His eyes follow the movements of other children playing around, or of a dog or cat, and their gambols draw from him a merry laugh. No intelligent sounds are made, but the babbling consists of definite syllables, as, "mam, mam, mam ; da, da, da ; ba, ba, ba," and so on.

Ninth Month to end of First Year.—The child now takes five meals a day. He should not need feeding after 9.30 at night. By this time the baby can sit unsupported on the floor, and in many cases has learned to crawl. Many children of this age will pull themselves up after crawling to a chair or some other object of support, and stand for a few seconds,

after which they "flop" suddenly on to the floor again. As a rule children do not learn to walk until the first year is completed, nor should they be encouraged to do so.

Twelfth to Fifteenth Month.—The feeding-bottle can be given up, unless required at night, and soaked rusks, porridge, etc., given with a spoon. A long morning sleep is desirable, and a shorter one in the afternoon. The art of walking is practised with varying success, and by the fifteenth month the average child can maintain its balance sufficiently to take short runs from its nurse's arms to its mother's. A good many actions can be taught at this age: waving a hand in farewell, blowing kisses, shaking hands, and so on.

Fifteenth to Eighteenth Month.—The child learns to walk securely during this time, and several words can be used: "Mama, ta, bow wow," etc. Nothing in the way of a sentence is formed as yet.

Eighteenth Month to Two Years.—During this time the average child can run about very freely, but he is soon tired. He uses the names of common animals and things: "pun" for sponge, "mik" for milk, "ba" for bath, "pu" for puss. These he can recognize in a picture-book, and will sometimes describe an action, as "Bun dink mik" ("Bunny drinking milk"), "Bur fy wa" ("Bird flying away"). Girls are usually more forward in the art of conversation than boys, and at the age of two many little girls have a considerable vocabulary, which they can use in sentences. Nursery rhymes are often learned at this age by quick children.

General Principles of Early Training

All infants have instinctive tendencies which they have inherited from their parents, and which have probably been handed down to them through several generations.

One of the mother's first cares should be the forming of certain habits in her child necessary for his own comfort and well-being as well as of those around him. Dearly as we love our children, we must in honesty confess that some of their primitive impulses resemble those of the "beasts which perish" rather than of civilized humanity. It is not necessary to confess, when we are being complimented on the health and beauty of our children, that our curly-headed darling used this portion of his anatomy to "butt" at his nurse an hour ago; or that the little even, white teeth, which gleam so brightly between the now smiling lips of our treasure, were doing their best to meet in the flesh of his indulgent parent's arm not long before. Such tendencies can only be eradicated by early and careful training, and we are acting upon a thoroughly scientific principle when, by the formation of good habits, we displace those of the character I have just mentioned.

Formation of Habits in Early Infancy.—A young mother gains some practical instruction on this subject by watching the methods by which a good monthly nurse ensures for her patient and herself the much-needed night's rest. The infant is placed in its cot

and the room darkened. She pats it with gentle, monotonous rhythm, and the little one drops quietly off to sleep. Should it wake before the necessary time for feeding, the same process is patiently gone through, and in this way the "habit" of sleeping four or five hours at night is formed. Very soon the infant will fall asleep of itself, and will wake only at the end of this definite interval. The practice of walking about at night with a healthy infant is one which cannot be too strongly condemned.

We have already touched on the importance of forming habits of cleanliness, regular feeding, etc., in a former chapter. It remains now to formulate some definite principle by which we can train what are known as "habits of mind," to the benefit of ourselves and our children.

Nursery Discipline.—It is in the main a matter of regret that there is, generally speaking, an absence of nursery life in the Colonies. But, no doubt, we escape in this way the "seamy side" of the nursery system at home, where children of society mothers are handed over, body and mind, to the care of a valued but often untrustworthy nurse, under whose despotic rule her young charges spend their early years, in an atmosphere of false standards and doubtful integrity. Knowing this side of nursery life, one cannot speak too highly of the self-denial of many young mothers, and of fathers also, who cheerfully, year after year, give up all thought of evening entertainments in order to remain at home to cherish and safeguard their growing families in the Colonies.

Nevertheless it is, as I said, a matter of regret that there is not the regular nursery discipline in most of our homes that a child of English parentage would get in the homeland. Our children roam the house as soon as they can walk. Their bright faces appear unexpectedly at any and every door, in season and out of season. They begin to live a public life before they can say their first sentence, with the result that much of the training they receive is, of necessity, irregular and ineffectual. Children are by nature creatures of habit, and one can imagine no greater rest to their nervous systems than that afforded by the inflexible *régime* of hours for rising, eating, walking, and sleeping which obtains in a well-regulated nursery. Often, in the absence of such a system, the regulation of these vital matters passes more or less into the hands of the children, with disastrous results to themselves and their parents. Children must learn discipline and self-control at home, if they are to adapt themselves later on to the more complex conditions of school life. Strange as it may seem, little children are strong supporters of nursery routine and discipline. Nature seems to have endowed us all with conservative principles in early life, with the object, no doubt, of limiting the wear and tear of our nervous systems; and a young child will fight jealously for its nursery code of rules should anything occur to break through the daily routine. Certain forms of treatment for certain offences, provided they are reasonable and inflexible, seem to appeal to the sense of justice in quite

tiny children. To give an example: A little girl under two years of age had a habit, when thwarted in her wishes, of throwing herself on the ground and giving vent to her displeasure by kicking and screaming. She soon realized that her mother's policy was one of "masterly inactivity"—in other words, that she said nothing to her but left her to recover herself, which she very quickly did. The little one soon began to guard this *régime* jealously, and any would-be sympathizer who came to pick her up and comfort her, was met by the sobbing direction, "Don't touch her—leave on floor—she'll come round!"

It is impossible to explain to young children all our reasons for what we do, or refrain from doing, in their interest. *Don't argue, but obey* is often the kindest answer we can give a rebellious child. To attempt to explain to young children the system on which we endeavour to train their minds for after contact with the world, would simply result in making them self-conscious and priggish. When a special order is questioned, and we can give a straightforward and convincing reason, I don't see why we should withhold it; but "argument" implies a certain equality in knowledge and experience, and this we know is impossible between parent and child.

Childhood is pre-eminently the time in our lives when the submission of our wills to another's direction strengthens and develops them, and the denial of this training through misplaced indulgence or indifference on the part of the parents robs the child of a most valuable portion of its birthright.

There are endless opportunities in the nursery to practise all the most important virtues of social and family life—self-control, unselfishness, gentleness, with consideration for the weak; and, in addition, it provides an opportunity for that most salutary, though not always pleasant, experience of “finding one’s own level.” The nursery should really be in its essential elements a miniature kingdom, ruled over by a firm but just, despotic being, who is answerable to the parents as a viceroy to his sovereign, and who exists for the purpose of carrying out the wishes of her superior.

The most serious drawback to the want of nursery life is the tendency for children to become precocious from constant association with more developed minds. A girl of eight, who is allowed to run in and out of the drawing-room on the mother’s “At Home” day, will soon find the society of her contemporaries “tame” by comparison with the attentions she receives at the hands of her mother’s guests, and she incurs the risk of missing a good deal of the freshness of her girlhood through being “brought out” a decade too soon.

In the absence of nursery *régime* we may minimize its loss to the child by the institution of certain definite rules, from which there must be no appeal. Only the broad lines of these can be indicated, and they should be those essentially concerned with the formation of habits and character: Regularity at and tidiness for meals. The habit of asking permission before entering any room in which grown-up people

are present, and so on. One very important rule is, that the child should speak courteously to its inferiors, whether white or coloured. Many small children in the Colonies are allowed to speak and behave rudely to coloured servants, unreprieved. The result is that, as the child grows up, this habit of roughness in speech becomes part of his nature, and is extremely difficult to eradicate in after-life. The question is not one concerned with the social differences, but rather one of *noblesse oblige*. Courteous behaviour is demanded of the child, in virtue of his birthright, to every one, irrespective of social status. In other words, we cannot afford to let our children lose this essential part of their character formation, and we realize, also, that careful attention to this point is a good safeguard against undue familiarity in our relations with coloured races.

There are certain admitted difficulties in training our children in the habits of refinement which we desire them to have. The domestic *entourage* of a Colonial home is not as well adapted for this purpose as the self-contained character of an English one, yet I feel sure it can be done with watchfulness and care. A sense of propriety can be inculcated in the tiniest children, and, provided we retain their full confidence, as they grow up we need not fear any serious lapse either of thought or habit from the standard we have set before them.

Early Training in the Home

Normal and Abnormal Children.—No mother ever acknowledges to herself that her children belong to an ordinary type, yet, on the whole, it is a matter for real congratulation when they do so. Nature may be relied on to choose a good working pattern for the every-day work of the world, and we find that children who approach most nearly to this normal or ordinary type grow up into sane and reliable men and women. It is true, in a sense, that the world is chiefly moved by men of one idea, *i.e.* enthusiasts, but, on the other hand, asylums are filled with mono-maniacs, which may be translated, "enthusiasts gone mad."

Normal children, though they may not strike outsiders as being in any way remarkable, give more unalloyed pleasure to their parents than do exceptionally brilliant ones. Their health is sounder, their tempers are undoubtedly better, and their attitude towards life in general is one of more cheerful contentment. These children escape many of the ups and downs, both mental and physical, which befall their less well-balanced fellows.

The first class of abnormal children which we shall consider is the *nervous* and *mentally precocious* type.

Precocious children need very special care. A finely organized nervous system has great compensations, but many drawbacks. In early childhood there should be the minimum of strain upon it, if its

possessor is to find it a "goodly heritage" in later life. Everything which affects the well-being of such a child must be carefully looked to. The diet should be plain and unstimulating; exercise and rest in their right proportions must be insisted on; plenty of sleep is essential. Such children are often inclined to sleep rather late in the mornings. This habit should be commended rather than corrected, remembering how rapidly the active little brain enlarges its "correspondences" during the day. Children's parties and pantomimes are out of the question for this type of child; so also is much conversation with grown-up people. Lessons must be delayed as long as possible, but such children will often teach themselves to read before they are five.

The training of these bright, attractive children is often a work of real self-denial to wise and far-seeing parents. They are so companionable, so full of quaint, original fancies, that the desire to draw them out and show them off becomes almost irresistible at times. They seem to have been born with a determination to get the most out of life, and the nursery toy-cupboard, which for the ordinary child contains so many dolls, nine-pins, and bricks, appears to these little romancers a palace of delight, wherein live fairies, bold brigands, and captive princesses, always in readiness for the most thrilling adventures and experiences at the will of their imaginative possessors.

Such children often show great impatience towards others slower witted than themselves, yet such

companionship is the very best training for them. The better balanced brain of a placid, good-tempered child will control some of the extravagances of imagination in the other, and so modify the evils of its nervous temperament. Children are severe critics of each other's foibles, and are very sensitive to each other's ridicule. How often we see a tiny child flush with distress when it is laughed at by an older one for misnaming some well-known animal, and how carefully it will repeat the word at the older child's dictation, that it may not err again in the same way.

We may sum up, then, the treatment of the nervous, intellectual type of child as follows: Give it the best hygienic surroundings, avoid all excitement possible, and let its brain lie fallow for the first seven years.

Backward Children: Mentally sluggish children.—This type includes a wide range, from the very slight amount of backwardness, which is fully made up by the end of the third year, to the borderline of mental deficiency, which for ever unfits the child to take its place in the world as a responsible and independent being.

The most common cause of *backwardness* is ill-health. A succession of infantile diseases during the first twelve months of life—whooping cough following measles, which, with its attendant bronchitis, may be scarcely recovered from before some other infective disease comes along—will inevitably retard a young child's growth and development to a

considerable degree, and his mother is perfectly right when she explains to her friends that the little one has "lost six months through having gone through so much." Another cause is *chronic dyspepsia*. The brain expands and grows as the body lives and thrives, and a starved or semi-starved body means, in early childhood, at any rate, a sluggish and undeveloped brain.

The effect of *rickets* in retarding mental development is dealt with more fully in another chapter. Children affected with a slight degree of rickets often develop quickly when this condition is recovered from, and "catch up" to the average child by the end of the fifth year. A severe form of rickets, on the other hand, appears to leave a distinct degree of mental sluggishness behind it.

The severest form of *backwardness* is one which I need only name, as it needs the most skilled advice and medical supervision throughout life. This is *arrested brain development*, which may occur before the child's birth, or from some definite injury to the head within the first year of life.

Symptoms of Backwardness.—A healthy normal baby begins to "take notice," as we say, about the sixth week: even before this time he may recognize the voice of mother or nurse, and turn his head to the side from which it comes. He will also follow a light with his eyes when it is passed before him. Bright-coloured objects, as toys and ribbons, attract him a little later. Sometimes the movement of a hand towards the object is noticed, but there is no co-

ordinate power, as it is called, between the brain, which observes the object, and the muscles of the hand and arm, which would seize it if they could. A month or so later the infant can raise its head and look about, and by the age of six months it can direct its hand towards an object within its reach. By this time, therefore, an infant should have made considerable progress in mental development. He can express both pleasure and pain, and can recognize all the familiar faces and voices which make up his little world. A "backward" baby may take nine months or even a year to reach this stage, but should there be some recognized ill-health to account for this delay in development, the mother must take courage and exercise patience, for she may look forward with a good deal of confidence to more rapid mental progress in her child, when the system is no longer hampered by the effects of ill-health.

Brain Deficiency.—Should the weeks pass on after a baby's birth and no sign of intelligence appear, the fear of "mental deficiency" will be aroused. If at the age of four months the baby lies listless and apathetic in its cot, with no power of holding up its head, and no sign of interest in familiar objects, this suspicion becomes a certainty.

The Treatment of Backward Children.—The key-note of treatment must be *patience*. Time is the best cure, and "make haste slowly" is a good motto. Backwardness has many phases; sometimes a child who has almost walked at a year and has been then assailed by a long, weakening disease, or by a series

of "set backs," may refuse to do anything but crawl at eighteen months. Let him crawl. The muscles and ligaments which were fit for walking six months before have not recovered their tone, and crawling is the best means of strengthening them.

In other cases a child which has seemed intelligent at fifteen months is dull and heavy at the age of two years. This is especially the case where rickets has developed during the second year, and has not been discovered promptly. Here, again, time and the removal of the cause will work a cure.

Delay in Speech.—Several channels of communication between the outside world and the brain are concerned in learning to speak.

1. The hearing apparatus conveys sounds to the brain.

2. A group of nerve centres translates these sounds into ideas.

3. Another group of nerve centres converts these ideas into impulses, which set in motion the organs of speech.

This threefold chain must be in perfect order before the result is articulate speech.

The delay in learning to speak, therefore, may be due to weakness of either link in this chain. It must be remembered, however, that children vary much in the time at which they begin to try to articulate. Two children in a family of my acquaintance are marked instances of this—the elder, a boy, reached the age of three years without having put two words together; his sister, at the age of eighteen months,

had quite a big vocabulary of single words ; yet at the age of four and six years respectively, no one could say that the boy had not fully attained the higher development which his two years' seniority gave him. Girls are undoubtedly quicker at talking than boys, and the younger children of a family often pick up the rudiments of speech very quickly from the older ones.

It seldom happens, however, that a child passes his second year without making some attempt at articulation, and should he fail to do so, it is always wise to seek medical advice. A slight degree of rickets, or a deficiency in the hearing apparatus, or some abnormality in the organs of speech may, in this way, be detected for the first time.

Delay in Walking.—If a baby passes his fifteenth month without having made any attempt at standing, medical advice should be sought. There may be very slight deformities about the feet and ankles which pass unnoticed by mother and nurse. These are usually due to rickets, and take the form of thickening round the ankle joint, owing to the bone-forming materials being irregularly deposited. There may also be muscular deformities, dating from birth, so slight in character as to escape notice. Heavy babies are often very late in walking, their limbs being unable to sustain the weight of their bodies. In such cases all that is wanted is time in which to allow the limbs to grow stronger and harder.

Mentally Deficient Babies.—In these the walking powers may not be attained for several years ; at the age of two such children are sometimes unable to sit

up unsupported. As such cases will always need skilled treatment, we need not dwell on them here.

Difficult Children

There are certain children to whom the term "cranky" is often applied by their long-suffering attendants. While not manifesting any exceptional mental development they certainly do not show any deficiency of brain power, yet these children, by reason of their unaccommodating dispositions, cause considerable anxiety to their parents. Such children need very patient and careful studying, while at the same time their wilfulness and want of complaisance must be sternly checked. It is a fatal mistake to give in to the whims of such children for the sake of peace. To do so is to withhold from them their greatest aid in obtaining self-control. A good deal of this contrariness has its origin in ill-health, and close observers of children and their ailments have associated this condition in many cases with chronic catarrh of the small bowel, the result of some irritative process, causing fermentation, with its accompaniment of flatulent distension. We believe the presence of worms may bring about such a condition. This "mucous disease" of the bowel, as one authority has named it, no doubt produces distinct irritation of the nervous system. Such children are often heavy eyed and pale. Their livers are sluggish, and their appetite capricious. The climate in which they live may not be a particularly suitable one for them. All these

questions must be gone into and dealt with as far as possible. If the child becomes morose and seems to avoid companionship, the possibility of bad habits being formed must be kept in mind. Even the greatest care cannot always shield a young child from the evil influences of the lower civilization of the coloured races which surrounds and, to a certain degree, penetrates social life in some Colonies. If a mother's suspicions are aroused in this direction, persistent watchfulness will probably lead her to right conclusions before long, and with patience and gentleness she will gain the child's confidence. Bad habits, if detected in this early stage, will be corrected with little difficulty. Should her own efforts be unsuccessful, the family doctor must be appealed to for further advice.

CHAPTER VI

COMMON DISORDERS OF INFANCY AND EARLY CHILDHOOD

Early Signs of Disease

WE have described in a former chapter the "Hall marks" of health in infancy and early childhood, and the mother who has made herself thoroughly familiar with these will be in a position to detect the earliest signs of disease in her little ones.

As a rule, in young children the line between health and illness is pretty sharply defined. They are unlike grown-up people in this respect, since in every adult community we find a certain class who, in the language of former times, "enjoy poor health" in a borderland between the two. It is this sudden onset of illness in early life which makes it so all-important that a young mother should have her children under constant observation, since time lost in treating a sick child is a very serious matter.

No doubt the finely adjusted balance of the infant's nervous system is accountable for the fact that its attacks of illness are of so sudden and peremptory a character. We must remember that into the first

seven years of a child's life, quite three-fourths of his growth and development, both mental and physical, are concentrated. Little wonder, then, that it is the most dangerous period of life, if we except extreme old age.

From the most recent health report of one of the cleanest and best-kept towns in South Africa, we learn that one European child in ten dies within its first year, and more than one in twenty between the ages of one and five years. These statistics are not given in order to unnerve or terrify the young mother, but to stimulate her to watchfulness that the earliest signs of disease may not be missed.

Medical Advice.—Mothers vary much in the way in which they regard the necessity or otherwise of medical advice for their children. Some mothers take a healthy pride in telling of the long intervals which elapse between medical visits to their families ; others manifest a chastened superiority in the announcement that for such and such a lengthened period “the doctor has never been out of the house.”

There is no doubt that many healthy children get through this critical period of their lives without any help from either drugs or doctor, and it is very much to the credit of their parents that they do so. But, on the other hand, innumerable lives have been saved by a prompt application for skilled medical advice, and no mother, however successful in rearing her own family, should dissuade an inexperienced neighbour from seeking it, on the grounds that, “No one understands children like those who have had

them ;" or that " Doctors never know anything about babies."

It is far safer for an inexperienced mother to err on the side of obtaining sound medical advice for a trivial matter than to follow any domestic system of medicine which, admirably as it may have succeeded in the family of one of these "mothers in Israel," makes no allowance for the modifications which heredity and environment will produce in the constitution of a child of different parentage.

I know that some mothers complain that a visit to the doctor with their sick child produces little satisfaction. The initial mistake made, in cases like these, is in taking the little one to the medical attendant instead of requesting a visit at the house. The consulting room is not the place for a first examination of a sick child, and many doctors, recognizing this, are wise enough to send the mother home at once with the promise of a prompt visit to it there. A young child is always disturbed by a new environment, and the half-hour spent in waiting in the ante-room until the doctor is at leisure seldom fails to exhaust its small stock of complaisance. When its time comes to be examined and prescribed for, it is often irritable and intractable. The mother becomes "flustered" as she proceeds to undress her child, and the expression of the medical man becomes one of pained endurance as his eye follows what appears to him a wilderness of tapes and strings as intricate as the lines of rail at a London terminus becoming rapidly converted into a crop of knots of the most determined

character under the mother's nervous fingers. Far better results will accrue if the child is seen at home in its familiar surroundings, where it feels safe and comfortable, and where the preparations for the doctor's visit can be made beforehand.

In the case of an infant this can be done by dressing it in a clean loose night-gown after its morning bath ; should the visit be delayed, it can be carried outside safely with the addition of a shawl. When the patient is an older child it is better to keep him in bed, and amuse him with books and toys while waiting for the doctor. To have to send in search of the invalid after the doctor arrives, and to get him brought in an unwilling captive, hot and resentful from his struggles for liberty, is simply to challenge the Fates. As an additional precaution the mother should make notes of what she wishes to say, and she should try to keep to the record of her observations without enlarging upon her theory as to the cause of the disease. A well-known children's doctor has said in substance : " Listen carefully to a mother's observations on matters of fact, and ignore those which deal with matters of theory. Their opinion as to whether the child is getting better or worse is generally correct, and should never be made light of." Unless there is some special reason against moving him, the child is best in his mother's arms during an examination. He feels safe there, and her encouraging word or smile will reassure him should his fears be aroused at any point.

If the mother has her questions in tabular form on

paper, she can jot down the answers to them before the doctor leaves the house. When these precautions are taken there is little fear that the medical visit will be a disappointing one, and such evidences of care and intelligence in preparing for the visit will inspire in the medical attendant the desire to give all the help and enlightenment in his power.

Domestic Medicines.—A good monthly nurse will probably counsel the young mother to limit herself to two nursery drugs—castor oil and dill water. These, with a half-ounce glass syringe, a little vaseline, sweet oil, glycerine, boracic powder, and Condyl's fluid, should be the only things allowed on the medicine shelf.

Avoid all Patent Drugs.—"Soothing" powders and syrups nearly all contain opium in some form or other, and are therefore entirely unsuitable for domestic administration. A wise children's doctor has remarked: "A full medicine cupboard makes a full churchyard." Where a mother is within reach of medical aid, there is no possible excuse for stocking her shelves with "emergency medicines," which are liable in unskilled hands to create emergencies instead of meeting them. Later on the magnesia and rhubarb bottles may find a place, and in a *locked* compartment an ounce bottle each of ipecac wine and paregoric. A further list of drugs, which may be kept with advantage by mothers in isolated country districts, will be found in the Appendix.

We shall now consider some of the more common

disorders of infancy and early childhood. The first group of these we shall call—

Food Disorders

Rickets.—The condition known as rickets is often spoken of as a disease of the bones, but it is in its appropriate place when classed as one of the food disorders. Deformity and softening of the bones, especially those of the arms and legs, are the most prominent symptoms; but there are others as important, which, if noticed at all by the mother, would not appear to her to have any connection with this disease.

In the chapter on infant feeding we analysed the different constituents of food, and classified them under the headings of *proteids*, *carbohydrates*, *fats*, *salts*, and *water*. We saw that it is important not only that a child's food should contain all these elements, but that it should contain them in their *right* proportions.

Rickets, in the majority of cases, can be traced to improper feeding during the first eighteen months of life, and by this we mean that although in some sense the child may have been overfed, *i.e.* as regards the number of meals in a day, and the quantity given, the *quality* of its nourishment has been inadequate to the demands of its rapidly growing system. This being the case it follows that—

1. *Milk Food given too Weak* may cause rickets, and this applies not only to cow's milk and condensed

milk too freely diluted, but also to mother's milk if the mother has continued nursing too long, or if, from constitutional weakness of any sort, her milk is watery and deficient in solid elements.

2. *Unsuitable Forms of Milk Food.*—Certain patent foods, much prized by busy mothers, which are advertised as making "A Perfect Infants' Food," with the addition of boiling water only, contain a large proportion of starch which the undeveloped digestive system of an infant can make little use of, while only a small proportion of the elements necessary for his growth and nourishment can be found in them. A prolonged use of such a food will undoubtedly tend to cause rickets.

3. *Chronic Digestive Disorders.*—Here the fault may not be in the nourishment given, but in the failure of the infant's powers of assimilation. The absorbing surfaces of the digestive tract are put more or less "out of gear" by chronic inflammation or "irritation." The result is that only a comparatively small proportion of the food taken into the stomach gets into the general system.

Other less obvious causes of rickets are *inherited weakness from one or both parents*, and *bad hygienic conditions*. A house in a low, damp situation, which gets a minimum of sunshine, is apt to affect a young infant predisposed to rickets.

Symptoms of Rickets

1. **Excessive Activity of the Sweat Glands.**—As a rule, the first symptoms appear when the child is about four months old, but they are often overlooked. A mother may notice that whenever the child has had a sleep the impress of the little head on the pillow is quite wet, and the child's head and neck are bathed in perspiration. The same condition is noticed if the child is played with and gets excited—beads of perspiration collect on the top of the head after very slight exertion. This occurs quite independently of the state of the atmosphere.

2. **Restlessness.**—Many healthy children are restless during sleep, but a rickety child is especially so. He is apt to turn from side to side and throw off the bedclothes, no matter if the night is cold. A certain "boring" movement of the head on the pillow is noticeable in rickety children, and often awakens anxiety in the mother's mind as to the possibility of brain disease.

3. **Tenderness of the Limbs.**—The child may be fretful when washed and dressed where formerly he enjoyed these processes. He is disinclined to move his limbs, and lies listlessly in his cot. Any manipulation of the limbs seems to give discomfort. Failing any special injury, such sensitiveness in a young child will always give rise to the suspicion of *rickets* or *scurvy*.

Food Atrophy

When the food given to an infant is unsuitable by reason of its failure to fulfil the necessary conditions of nutrition, the infant's weight, instead of increasing week by week, remains stationary. Should this same food be persisted with, in spite of this danger sign, the child will begin to lose weight steadily, and show signs of what we call *food atrophy*. This disease is found in the homes of well-to-do parents as well as in those of the poor, and it is remarkable that some of the most cherished babies manifest a high degree of it when medical advice is first sought. The reason for this is, I believe, that while the limbs and body show marked signs of malnutrition, the child's face "does not pity him," as we say, and the mother's fears are, therefore, not excited as early as they otherwise would be.

The **Signs of Food Atrophy** are those of *indigestion* and *wasting*. Among the former are flatulence, colic, vomiting, diarrhœa, or sometimes constipation.

Wasting is shown by the loss of *roundness* in the limbs, while the skin hangs loosely, owing to the disappearance of the fat below it. The skin, instead of being smooth and velvety, becomes harsh and dry, and, when taken up between finger and thumb, fails to show the elasticity of the skin of a healthy child. At a later stage the complexion becomes pallid, with a characteristic "opaque" look. The eyes lose their brightness and are sunken, and the face has a

"drawn" look. Neighbours who drop in to give help and sympathy often remark that the child appears to be "going into a decline." So closely do the symptoms, as a matter of fact, resemble those of tuberculosis (consumption) that, in the absence of any specially distinctive signs, the medical attendant often hesitates to give a definite opinion until the effects of treatment are apparent.

For the most part, in severe cases, the child lies listlessly, taking very little notice. His cry, when aroused, is peevish and long continued. Sometimes he takes his food eagerly; at other times the soreness of mouth and gums causes him to push the bottle or cup from him in disgust. Chafing of the skin is very common, and in bad cases boils may appear in considerable numbers.

The treatment of this disease consists in seeking medical advice as soon as possible. The diet will require a thorough investigation, and, provided the case is taken in time, the outlook is hopeful. It must not be forgotten, however, that an infant in this condition will have very little chance should an acute disease overtake him before convalescence is thoroughly established.

Scurvy.—This does not appear to be a common disease in the Colonies at the present time. It occurs in infants between the ages of six and eighteen months. Some marked cases of it have been traced to the exclusive use of proprietary foods, and also to inferior brands of condensed milk, and sometimes to "sterilized" milk. The prolonged use of "peptonised"

foods has been known to cause it. Two cases occurring in my own practice were the babies of well-to-do parents, fed entirely on condensed milk.

The Signs of Scurvy are those of wasting, as in atrophy, but, in addition, hæmorrhages occur in the joints and under the skin. The gums become "spongy," and bleed easily. The face assumes a grey, earthy look, very characteristic of this disease. There is a good deal of tenderness of the limbs. The child cries on being moved.

Treatment of all Food Disorders.—Medical advice must be sought without delay. The child's recovery depends upon the prompt substitution of a suitable diet for the defective one which has produced the special disease; and in that of *scurvy*, in giving what are known as "antiscorbutic" remedies, such as fresh fruit juice, with iron and cod-liver oil as tonics.

Acute Indigestion

In early infancy this condition is nearly always due to over-feeding, or to sour or otherwise tainted milk, and the remedy consists in remedying the defects in the food supply. In older children it can nearly always be traced to some unsuitable food having been recently taken. Children who go to parties and are fed on plum cake and jam tarts are familiar examples of this. The undigested portion of the feast sets up irritation in the stomach, and the child wakes from his first sleep complaining of sharp pain. Vomiting and

diarrhoea usually follow, and may continue in delicate children for twenty-four hours or more.

The Treatment consists of an emetic; mustard and water is a useful one, and is always at hand. When this has acted, it is well to give a dose of castor oil, suitable to the age of the child. These remedies, if applied promptly, will usually cut short an attack.

Worms

Although we cannot trace every case of worms to errors of diet, their presence is so closely connected with this condition that this seems a suitable place in which to mention them. The three principal kinds we find are *tape-worms*, *round*, and *thread worms*.

Tape Worms are found in diseased pork and beef as minute, round particles, like sago grains. When eaten, they develop in the intestine into long, jointed worms, several feet in length, with the flattened form which gives them their name.

Round Worms appear to enter the system through impure water or stale articles of food. They are like an ordinary earthworm in size and general appearance excepting colour.

Thread Worms.—There is no doubt that the eating of inferior sweets produces thread-worms in young children. Delicate children are especially liable to them, while robust children usually escape them. They are tiny, white, thread-like bodies, about one-third of an inch in length, but sometimes longer, and inhabit the lowest part of the bowel.

Symptoms.—Tape-worms often cause very serious disturbance of the system in young children, and a doctor's advice should be sought if the mother's suspicions are aroused. Round worms are extremely common in parts of South Africa and India, and may not give rise to any symptoms beyond a capricious appetite, and often a furred tongue. When discovered, a dose or two of worm-powder, given in the early morning, followed by a good dose of castor-oil the following day, will usually get rid of them.

Thread-worms may also be treated by "worm-powder," which will have the effect of driving them down towards the orifice, and salt and water in the proportion of a teaspoonful to one-fourth pint (five ounces) of warm water should then be carefully and gently injected into the bowel with a glass syringe, and the child should be encouraged to retain it as long as possible.

"Worms" are considered responsible for a variety of nervous symptoms in delicate children: squint, convulsions, the inability to hold their water, as well as the well-known teeth grinding and picking of the nose and lips, being instances of this. It is very probable, however, that these nervous affections are due to the gastro-intestinal disturbances set up by the presence of worms, since they are observed in other conditions which cause irritation of the mucous membrane of the stomach and bowel.

CHAPTER VII

COMMON DISORDERS OF INFANCY AND EARLY CHILDHOOD— (continued)

Digestive Disorders

THE mouth of a newly-born child is dry to the touch, and of a uniform red colour. The tongue should also be red and smooth to the feel of the finger. Sometimes on looking at the under surface of the tongue a band of skin seems to attach the front part of the tongue to the jaw underneath. This, if noticed, should be pointed out to the doctor at his next visit, and, if necessary, it can be snipped through without giving rise to anything more than a little bleeding, which stops of itself in a minute. Very often mothers and nurses mistake a natural attachment of the tongue for tongue-tie; but the doctor's opinion will soon clear up the matter.

On account of the dry condition of the newly-born infant's mouth, little flecks of milk are apt to cling to the roof as well as to the gums and the tongue and, if left there, may irritate the delicate membrane (called *mucous membrane*) with which it is lined. For this

reason the mouth should be carefully cleansed two or three times a day. A soft rag wrapped round the finger, and dipped into a little plain *boiled* water, or weak solution of boracic acid (*Form. I.*), will answer the purpose well.

Thrush is a disease of the mouth marked by white patches of varying size, appearing on the roof, gums, inside of cheeks, and side of tongue. It is due to a parasite conveyed through the milk, and is very seldom found in breast-fed children. Thrush is a condition which must not be ignored, as it points to some digestive disturbance, and the cause must be sought for. A child with thrush can convey it to another who uses its bottle or "comforter." There is no doubt that a badly-cleaned bottle can convey the "spores" or seeds of thrush to a delicate baby, though it might not affect a healthy child. A dirty "comforter" is also a means of conveyance, and neglect of the precaution to cleanse the mouth, as above directed, opens an avenue for infection by the parasite.

The best treatment for thrush is to cleanse the mouth thoroughly several times a day with plain *boiled* water, to which a little weak Condyl's Fluid (*Form. VIII.*) is added, burning the rag each time. (A soft cambric handkerchief, which is beginning to wear out, will supply a dozen or more pieces of the size required.) If the condition does not quickly clear up under this treatment, the doctor's advice must be sought, lest the child's general nutrition should suffer.

Troubles connected with Feeding

All young infants may be said to have weak digestions, when we consider the amount of work they have to do. A healthy infant doubles its weight in five months, and trebles it at the end of its first year. This means that the stomach, which we must regard as the headquarters of digestive activity, is kept working at high pressure throughout the first few months of life. It is well to keep this fact in mind, and to ensure to this hard-worked organ regular periods of rest, by day and night. The careful regulation of a baby's meals, and strict supervision as to quality and quantity, will reduce digestive troubles to a minimum ; but no infant escapes them entirely.

Flatulence.—This is a condition caused by the distension of the stomach by gas during or after meals. The food taken in is more than the juices of the stomach can act on at once, and therefore it breaks up, or “decomposes,” setting free a large amount of gas. The same thing may occur in the upper part of the bowel (small intestine). A healthy infant usually gets rid of this gas without much trouble, a little dandling on the part of the nurse brings it up, or, in other words, causes him to “break wind,” and after the process is repeated several times, the discomfort is got rid of. In the same way “flatulence” in the intestines can be passed by the bowel, though this is not such a straightforward process owing to its length and to the turnings or windings of the lesser bowel.

Premature or otherwise delicate babies often suffer a good deal from "wind," and attacks of "colic" are the order of the day. The best treatment in these cases is to give a few drops of dill water in a teaspoonful of warm water, and to unfasten the clothing and rub very gently over the whole abdomen, lubricating the hand with a little sweet oil. These combined remedies usually succeed in removing the "wind-bound" condition, though occasionally a square of flannel dipped in hot water and wrung out dry is a more soothing remedy, and this may be applied to the abdomen and changed every five minutes until the little one is eased. I have found, in obstinate cases, a small glass syringe of warm water, an ounce (two tablespoonfuls), to which two drops of spirits of turpentine is added, injected gently into the bowel, relieves almost at once. The fluid returns in a minute or so, followed by a varying amount of fæcal matter and a good deal of "wind," or "flatus." Care must be taken not to exceed the two drops, as turpentine in larger doses may irritate the urinary system.

The *prevention* of this condition lies in regulating the feeding times most carefully, and in trying to get the child to drink more slowly. This can be done in breast-fed babies by pressure with a finger on either side of the base of the nipple. In bottle-fed babies a stiffer teat, or one with a smaller aperture, will bring about the same result.

The *quality* of the food must also be seen to carefully. Breast-milk, as we have seen, is subject

to great variation, and any error in the mother's diet or general hygiene must be corrected. The food of bottle-fed babies may be diluted with one-half to one-third part of barley water, according to age, or a bottle of barley water only, given occasionally to relieve the strain on the digestive powers. If the infant suffers continuously enough to lose its sleep, medical advice should be sought.

Vomiting.—This is a very common condition in the first few months of infancy, and it is not necessarily a grave one. The young infant has no regard for Euclid's axiom, "The less cannot contain the greater," and a vigorous baby often takes more than his stomach can hold, with the result that the over-plus returns to view once more, greatly to his own relief, though often to the consternation of his mother. The remedy in this case is to get him to feed more slowly, so that some of the food taken has a chance of being absorbed before the meal is concluded. In cases of this sort, vomiting is beneficial rather than otherwise. The vomiting of hand-fed babies is a more difficult condition to tackle. Some bottle babies vomit frequently, and yet are firm and thriving. In their case, as in the breast-fed, the remedy lies in making them take longer over their meals.

In puny and delicate babies vomiting usually points to digestive weakness. The juices of the stomach are poor in quality and deficient in quantity, with the result that the work required of them is not forthcoming. Vomiting under such conditions

takes place within half an hour or three-quarters after the meal, and the infant shows signs of restlessness and distress for some minutes before it occurs. The returned food is sour-smelling, and consists of hard, curdy masses. The infant is relieved for the time, but shows signs of hunger again very soon, when, if the same proportions are given, the process is repeated. In such cases it is always wise to *weaken* the mixture taken, especially in the case of fresh cow's milk. Barley water is very useful for this purpose. A tablespoonful of lime water may be added to each bottle with good effect. If vomiting persists, the process of "peptonizing" the food must be tried, with the object of giving the stomach less work to do (see "Artificial Feeding," Chap. III.). In obstinate cases, when medical advice is not at hand, it may be necessary to knock off all milk for a day or so, and use white of egg or sherry whey (*Form.* VI. and VII.).

Looseness of the Bowels.—This may be quite a temporary condition, due to irritation of the undigested food in the bowel. In such a case the stools will contain particles of "curd," and a dose of castor oil will be of assistance in removing the irritation, and so checking the attack.

Chilling of the Feet and Abdomen in young infants often causes an attack of diarrhœa, and this is particularly likely to occur when a child is taken out in bright sunshine, lightly clad, and meets a cold, moist wind on its return home. A light shawl should always be carried when an infant is likely to be out after 4 p.m., even in summer time.

An attack of *diarrhœa* is often accompanied by feverishness, and sometimes by vomiting. Several large stools are passed within the first twelve hours, liquid and frothy in character, containing undigested curd. Later on they are green, and contain little solid matter, but a good deal of stringy mucus, which is sometimes a little blood-stained. These later stools have a sour smell, and are irritating to the skin of the parts with which they come in contact. If the *diarrhœa* continues more than forty-eight hours, the little limbs begin to get "soft," and the skin, especially about the thighs, hangs loosely, from the loss of the layer of fat underneath it. Artificially fed babies are more liable to these attacks than those at the breast, and the question of diet is all-important. The quantity of milk or milk food must be lessened, and if the case is at all obstinate, ordinary milk must be given up, and one of the "peptonized" milk formulæ used. It is often necessary to give up milk entirely for a day or two, and substitute *Form. VI.* or *Form. VII.* The mother should not do this on her own responsibility unless she is out of reach of medical aid. Of domestic remedies, castor oil is the safest and best at the beginning of the case, and teaspoonful doses can be repeated in six hours if necessary, in a child of one year, followed by *Form. XIII.*, if medical help is not at hand. All the ordinary "*diarrhœa* mixtures" are unsuitable for young infants, even in small doses, on account of the various forms of opium and similar drugs contained in them.

Chronic Diarrhœa.—Sometimes, in spite of careful

dietary, the looseness of the bowels becomes chronic, and the little one wastes daily. This is a most serious condition, and one needing skilled advice.

In other cases, a young infant who has struggled through whooping-cough, measles, or any similar disease may fail to gain "tone" throughout its system, and digestive troubles are the most prominent symptoms of this condition. Sometimes, no doubt, infants inherit feeble digestions from their parents, and any extra strain, such as dentition or acute illness, throws their digestive apparatus completely out of gear. Such cases often need weeks and months of careful nursing and dieting before they can be considered cured. Change to the sea for up-country babies, and to the hill-tops for coast babies, often works wonders in these cases. In fact, *change* is the key-note of their treatment. It must be borne in mind that these unhealthy stools may be a source of infection, and they should therefore be treated with Jeyes' or a similar disinfectant as soon as they are passed.

Constipation.—This is met with in both hand-fed and breast-fed babies, and it appears to be much more common in some of our Colonies than at home. For example, a Durban practitioner of great experience states from personal observation that two-thirds of the babies born there suffer to some extent from constipation during the first four months. It is mainly connected with errors in diet, although no doubt some babies inherit a constipated habit. Foods which are deficient in fats, and all starchy foods, tend to produce constipation. The stools when passed are firmer

and paler than they should be, and are inclined to be "lumpy."

The remedies for constipation are of various kinds. First in importance comes modification of diet. Cream or malt extract (from a half to a teaspoonful) may be added to each bottle; or barley water used to dilute the milk. Drugs are at best uncertain and unsatisfactory. A small glass syringe containing fifteen to thirty drops of pure glycerine in half an ounce of warm water injected gently into the bowel is a useful temporary remedy, and gentle massage of the abdomen with warm oil night and morning will usually overcome the constipation in time. Of drugs, the most useful are cascara mixture (*Form. IX.*), fig syrup, or rhubarb and magnesia mixture (*Form. X.*). The best results are got by ringing the changes on these remedies, as the system becomes accustomed to one or other when persisted in too long.

Gastro-Intestinal Catarrh

One of the commonest digestive disorders during the first two years of life, apart from errors of diet, is a disease, or, I might say more truly, a collection of diseases known by the term of "enteritis." The term signifies *inflammation of the bowel*. The disease, however, affects not only the whole of the lining membrane of the bowel, but the stomach as well, although, owing to the fact that the stomach in young children is not so completely developed as in later life, the bowel symptoms are the more apparent.

Hence the disease takes its name from the part most prominently affected.

Now, although it is not necessary in a book of this sort to define with perfect accuracy the morbid conditions which bring about this disease, it is well to try to get as accurate an idea of it as possible, on account of its great prevalence in some of our Colonies during certain seasons of the year. The condition of acute enteritis may be brought about, we believe, in various ways. I propose to include all varieties under the term of *Gastro-Intestinal Catarrh*.

The main, if not the sole, cause of this disease is *contamination of the food supply*.

There appear to be two methods by which the disease can be caused—

1. Irritation of the lining membrane of the stomach and intestines by particles of undigested and fermenting food. The fermentative process sets free certain acids which act as irritant poisons to the stomach and bowel. This we will call the *fermentative* form of gastro-intestinal catarrh.

2. The entrance into the system of certain microbes which have the power of producing a definite poison. This poison, by circulating in the blood, gives rise to a general blood-poisoning, which, if not checked, destroys life in a few days. This we will call the *infective* or microbic form.

The Fermentative Form of Gastro-Intestinal Catarrh is chiefly a trouble of children brought up by hand, or of breast-fed babies at the time of weaning. Any form of food which the infant is incapable

of digesting is liable to cause fermentation, if retained in the stomach and bowels, with the result that irritating acids are set free. These, coming into contact with the delicate lining membrane of the digestive tract, set up inflammation along its whole length, of a more or less severe degree. The gas which is given off when food ferments in the stomach or bowels also aggravates the condition, as these organs become more or less paralyzed, and cannot pass on their contents. Another cause is *direct infection of food* outside the body, and milk is particularly liable to become so infected from the ease with which it takes up germ particles. Any one who has watched a baby in its second year engrossed in eating a biscuit will be a ready convert to this theory of infection of food. The little hand, grasping the biscuit as a weapon, hammers on the table or floor between bites. A favourite cat or dog appears, and is graciously offered a lick. The biscuit drops in the dirt, and is picked up and held to the baby's mouth by an attentive but unreasoning nurse-girl. Finally, when in a more or less pulpy condition, it is smeared by tiny fingers over the nearest dusty surface before being crammed into the baby's mouth, to begin an adventurous journey down the "red lane" of absorbent surfaces, parting with its accumulated "foreign matter" *en route*.

A healthy child may repeat this process daily and get no apparent harm. The sound state of its system evidently protects it from the effects of its disregard of hygienic principles. Far otherwise is the result in the case of a delicate baby, whose digestive tract is

in an unhealthy and irritable condition. A dirty bottle, or food which has become in any way infected, will seldom fail to cause some of the symptoms to be hereafter described.

Microbic or Infective Gastro-Intestinal Catarrh.—

Nearly all the infective diseases of childhood are accompanied by some digestive upset. Many of them begin with the symptoms of vomiting or diarrhœa. This is not surprising when we remember the great activity of the digestive organs in early life. There are certain forms of infection, however, which specially assail the digestive tract in infancy, and the most serious is the variety of Gastro-Intestinal Catarrh which occurs in epidemic form over large areas.

A great deal of evidence goes to show that this disease is due to a microbe which only becomes really active when the temperature of the soil, at a depth of 12 to 18 inches below the surface, is fairly high.

The disease chiefly attacks children between the ages of one and five years, and commonly affects those who are susceptible by reason of some weakening of their system, either through digestive troubles or any other depressing cause. Thus we often find it attacking children who are recovering from measles, whooping cough, or scarlet fever; and mothers often volunteer the information that "it began with a cold," which is true in the sense that the cold weakened the child's system, and so predisposed it to the invasion of the disease.

Mode of Infection.—As regards the way in which infection comes about, our present knowledge of the

subject leads us to believe that this microbe is always present in the air in a more or less latent condition, and that when the atmospheric temperature rises to that of summer heat, it takes on new activity and becomes a poison. In this active state it is taken into the system through ordinary respiration, or in food which has been exposed to the microbe-laden atmosphere. When in the system these microbes develop poisonous properties which pass into the general circulation. An undoubted means of infection is the careless treatment of napkins removed from an infected child. These, if not dropped at once into a pail of disinfectant, which should be always at hand, may infect other young children in the family, or immediate neighbourhood.

Symptoms.—The symptoms of Gastro-Intestinal Catarrh resemble those of an ordinary attack of acute indigestion at first, and it is only owing to the continuance of the symptoms, in spite of remedies, that a suspicion arises as to the true nature of the complaint.

Vomiting is an early symptom, and often seems to give ease at first by relieving the stomach of a good deal of undigested food. Later on it is characterized by severe retching, with only a little bile-stained mucus which has a sour smell; sometimes, when the retching is persistent, the mucus is slightly tinged with blood.

Pain.—There is always a certain amount of "colicky" pain in the abdomen, shown by writhing and twisting movements of the child at intervals, and

by the drawing up of the thighs on to the abdomen. There is also a characteristic spasm of the face ; during an attack of pain the features become pinched-looking, and a bluish circle appears around the mouth.

Diarrhœa.—This is the most prominent symptom, the intestine being the chief site of the irritation. At the onset of the disease the bowels are merely loose, and a good deal of sour-smelling undigested food is passed. After a time the stools become more liquid, and are accompanied by a good deal of straining. The solid matter is mixed with froth and mucus, sometimes streaked with blood, greenish or grey-brown in colour, with a very strong odour ; later on they lose the solid matter and become quite watery. It must be remembered that the danger from all forms of acute diarrhœa does not consist in the number of motions passed, but in the amount of fluid withdrawn from the body and thrown off by the bowel. Large watery motions, therefore, are more to be feared than the frequent passage of a little blood-stained mucus only.

Fever.—In all but the very mildest forms of this complaint there is always a little temperature. It may be down to normal, or nearly so, in the morning, but by midday the temperature will have risen a degree or so, and by 5 p.m. it may register 100 degrees to 103 degrees, according to the severity of the case. Sometimes the disease begins with high fever, which drops as soon as diarrhœa sets in.

In the severest forms of the disease the symptoms above described are all present in an aggravated form.

The child becomes suddenly ill, with symptoms of severe vomiting and diarrhœa. Sometimes convulsions occur at the onset, and by the end of a few hours the condition is a serious one.

Treatment.—In the milder forms of the disease a dose of castor oil and careful dieting will often cut short an attack. *No milk* should be given during the first twelve hours. Barley water, plain or iced water, may be given to relieve thirst. When the vomiting ceases, small drinks of whey (*Form. VII.*) or chicken tea (*Form. VI.*) may be tried, and, if successful, very small amounts of peptonized milk or cream mixture (*Form. XVII.*) may be allowed, beginning with a teaspoonful, and repeating in twenty minutes if it is retained.

Should the symptoms persist without improvement for twenty-four hours, a doctor's advice should be sought without further delay; but for the guidance of mothers who are far from medical help, the following directions are added in order to save valuable time:—

Pain.—When the abdominal pain is severe, relief can be got by applying hot linseed poultices to the abdomen. These are more efficacious if *one teaspoonful* of dry mustard is added to two tablespoonfuls of the linseed meal. Hot flannels placed over the abdomen and changed every few minutes are also soothing. Both these applications must be tested with the back of the hand before coming in contact with the child's skin.

Collapse.—Should the child show great exhaustion

as the result of vomiting and copious watery stools, a hot blanket should be wrapped around it, and hot bottles placed in its cot. A few drops of brandy—five to thirty, according to age—may be given in a tablespoonful of water, or ten drops of sal volatile *well diluted* may be tried and repeated in half an hour if necessary. Should the pulse seem to fail in spite of these remedies, a hot bath containing mustard—two tablespoonfuls to a gallon—may be tried. The bath must not last more than three minutes, and the child must be quickly dried and returned to the hot blankets and bottles. In severe cases, rubbing the chest and limbs with brandy will be found helpful.

Vomiting and Diarrhœa.—These must be regarded at the onset as beneficial rather than the reverse, since through their means some of the irritating materials in the system are got rid of. For this reason castor oil is always a safe remedy, and it frequently answers better to give an ordinary dose, followed by small doses three times a day (*Form.* XIV.). In some cases a saline, such as fluid magnesia, is retained when castor oil cannot be.

For the later stages sedative drugs are employed, but these should not be given without medical direction.

When the diarrhœa is very severe and continuous, an enema may be given, with a glass syringe, of half an ounce of thin starch, just lukewarm, with three drops of laudanum, or six of paregoric. This may be repeated in four hours if there is no improvement.

Chronic Gastro-Intestinal Catarrh.—Sometimes the acute symptoms pass off, leaving the child with weakened digestive powers, shown by occasional vomiting and a tendency to loose motions. Soon the child shows signs of wasting; the skin gets harsh and loses its elasticity; the complexion becomes pasty, or slightly yellow; the child is a little feverish at night; the appetite is variable; thirst is always present. This is a grave condition, and should have the benefit of skilled medical advice whenever possible. Such cases need the most careful dietary, and often milk has to be discarded entirely for a time, and chicken broth (*Form. VI.*), whey (*Form. VII.*), and barley water used instead. When a return to milk is attempted, it must be peptonized (*Form. XVI.*), and given in very small quantities just at first.

Tonics, such as Parrish's food and malt and iron, are useful in the convalescent stage, but they must be used with caution in all weakened states of digestion. Cod-liver oil must not be tried while there is any tendency to diarrhœa.

Prevention of the Disease.—We cannot insist too strongly on the fact that gastro-intestinal catarrh is a *dirt* disease, and our best hopes of prevention lie in *perfect cleanliness* in all that regards the food supply and the feeding apparatus. All milk intended for the children's use must be kept from any possibility of contamination by microbes. "Stale" or "sour" milk undoubtedly contains bacilli capable of producing the disease.

Dysentery.—The most recent investigations of this subject lead us to believe that dysentery is due to the presence of organisms in the alimentary canal, which only become active under certain conditions ; *i.e.* where an unhealthy condition of the mucous membrane of the bowel has been brought about by unsuitable diet, by impure drinking-water, or in consequence of a weakening disease. The condition known as “catarrh of the bowel” is especially liable to the infection of dysentery.

Symptoms.—In children the attack often begins with diarrhœa, perhaps with the passage of a firm stool covered with mucus. This is followed by motions containing less and less solid matter, and more and more mucus, till finally only blood-stained mucus or pure blood is passed, after much straining.

The symptoms resemble those of gastro-intestinal catarrh to some extent, and the same preliminary treatment, of a dose of castor-oil, should be carried out. The child should be put to bed and given a diet of milk only. Fomentations to the abdomen may be tried, if the pain is severe, and the doctor promptly summoned.

Prevention of Dysentery.—Boil all drinking-water. Regulate the child’s diet carefully, especially keeping a strict watch over the fruit supply. Unripe or over-ripe fruit is a determining cause of dysentery in many young children.

Acute Rheumatism (*Rheumatic Fever*).—I have placed rheumatism at the end of this section because the rheumatic poison, the exact nature of which we

do not at present know, is undoubtedly largely influenced by processes connected closely with the digestive tract. No doubt we inherit the tendency to rheumatism from our parents or grandparents, but there is no reason why the disease should develop if care is taken to prevent it.

There appears to be some *determining cause* for the first attack of acute rheumatism in children, and this usually comes in the form of exposure to *damp* or *cold*.

Symptoms.—During an attack of acute rheumatism the acid (lactic acid) circulating in the blood produces inflammation of one or more joints, and also affects the valves of the heart in many cases. Hence there is *pain, swelling and redness* of the joints, and usually a rapid pulse and raised temperature.

Treatment.—The child should be put to bed at once, between blankets, and the doctor sent for without delay.

Prevention.—The children of rheumatic parents should have special care if we are to prevent the occurrence of the disease in them. Rheumatism in children does not always show as the definite attack just referred to. Often the signs of it are vague and seemingly unconnected. Amongst them are the following:—

1. *Tonsillitis.*—This, in a child of rheumatic parents, should always give rise to the suspicion of rheumatism, when there are repeated attacks, for which no cause can be assigned.

2. *Stiff Neck.*—The same remark applies to this symptom, if severe and of several days' duration.

3. *Headache*.—Obstinate headache, in some children, is undoubtedly due to rheumatism.

4. *Nightmare*.—This is said to be common in children of rheumatic parentage, and to be connected in them with the rheumatic condition.

5. *Chorea, or St. Vitus' Dance*.—We shall mention this disease in the chapter on "Nervous Diseases."

6. "*Growing Pains*." — These are thought by many authorities to be of rheumatic origin.

This list is sufficient to show that rheumatism in children may be a very insidious disease. There is danger in overlooking or neglecting a slight attack on account of the liability to heart disease, even in mild cases.

When a child shows any tendency to rheumatism, woollen clothing is absolutely imperative. The diet must be varied—plenty of well-cooked vegetables are essential, meat once a day is sufficient. Tonics are useful whenever the appetite flags. A child with rheumatic tendencies often has what his friends call an "irritable stomach," and sweets in excess or between meals must be strictly forbidden.

A warm, dry climate is best for these children, and in selecting a school for them this fact must be kept in mind.

CHAPTER VIII

RESPIRATORY SYSTEM

A HEALTHY infant, when at rest, breathes from twenty-five to thirty-five times a minute. If watched when asleep it will be noticed that the chest moves very slightly, the chief movement being in the abdominal muscles. *A high temperature from whatever cause* will give rise to increased rapidity of respiration, sometimes doubling its rate. The fever acts in this way by quickening the heart's action. In *bronchitis* and *pneumonia* the respiration is quickened as the lung is worked at a disadvantage, part of it being, so to speak, "out of gear."

We must not, however, jump to the conclusion that quickened respiration means bronchitis, pneumonia, or croup. There is a marked increase in the number of respirations when a child becomes feverish in the course of "teething," and this condition may easily be mistaken for the onset of an acute disease. Something more than rapid breathing must be noted before we can decide whether there is any actual disease in the respiratory system. The presence of a cough will help us in this matter. A child who has been put to bed well, or with perhaps a slight

cold, may rouse up towards midnight with the characteristic noisy breathing of croup. This form of breathing is due to the swelling of the vocal chords, which sometimes become covered with a white exudation called "false membrane," to distinguish it from that of diphtheria. The cough of croup is spasmodic in character, and has a "ringing" sound as of metal sharply struck. An attack of croup, occurring as it almost invariably does at night, is extremely alarming while it lasts; but as a matter of fact only in very weakly or very young children is there any danger to life. Within an hour or so the little one has usually recovered from his attack and has dropped into a quiet sleep.

Treatment.—Unless the medical attendant lives near at hand, the attack is often over before he can be summoned. Hence the great number and variety of "croup" remedies sold by chemists for use in the home. An emetic is usually all that is necessary in the way of drugs during an attack. The routine drug for this purpose is ipecacuanha wine, one teaspoonful as a dose. Should it fail to act within the first ten minutes, vomiting must be induced by inserting a finger into the mouth and gently tickling the back of the child's throat, as the drug is a depressing one if allowed to enter the system in such a dose. A sponge or flannel wrung out of hot water and placed over the throat (windpipe) and the upper part of the chest will give relief; sometimes a hot linseed poultice, with a half-teaspoonful of mustard stirred into each tablespoonful of linseed, will soothe the child off to sleep

again when the attack is passing off. It is important to keep the child in one room, which must be airy but not draughty, for two days after an attack, in order to prevent a recurrence.

Prevention of Croup.—Children subject to croup should be protected against high winds, both of the hot, cold, and damp varieties. Cold sponging every morning while the child sits in a warm bath is very beneficial, especially if Tidman's sea salt is added to the jug or basin in which the cold water is placed. A visit to the seaside for inland children often does wonders, while in the case of coast children the high mountain air is beneficial.

Clothing is of great importance. A "croupy" child should be dressed in woollen undergarments, reaching from the neck to the knees. It is often wise to allow him to discard shoes and stockings altogether, and so avoid the risk of wet foot-gear during the rainy months.

Special attention should be paid to the diet, as many attacks appear to be set up by an indigestible meal before going to bed. If the child is in poor condition, general tonics, such as malt and cod-liver oil, and Parrish's chemical food, will be found useful.

Two forms of throat trouble are often confounded with croup. One is called "child crowing," or *spasm of the windpipe* (laryngismus stridulous). This usually occurs in children of a highly nervous temperament, or in those who have a tendency to rickets, and is not without danger to life. This "child crowing" is not

limited to night attacks as croup is. It appears to be associated with nerve disturbance ; excitement, indigestion, the cutting of a tooth, may all cause it, and in severe cases there may be several attacks in twenty-four hours.

Whooping cough is sometimes complicated by this disorder in young children. The condition appears to start and end with the teething period. The attacks may come on without any warning, when the child is laughing, playing, or being fed. Suddenly the breath is held, the child becomes blue or pale, and after a few seconds a deep breath is taken with the well-known "crowing" sound, and the spasm is over.

It cannot be said that these attacks are free from danger, although they are seldom fatal. They appear to be associated with a distinct tendency to convulsions.

Treatment.—The best treatment of the spasm is to plunge the little one's hands into a basin of cold water, if at hand. A smart slap on the back or hands answers the same purpose. To prevent the attacks, great watchfulness is needed. The *digestive system* must receive careful attention. Constipation, flatulence, irregular or indigestible meals must all be guarded against. All possible excitement must be avoided. Older children must be trained not to snatch away a plaything roughly, but to substitute something else if the little patient has appropriated a special treasure. As regards drugs, the general indications are for those which improve digestion and which build up the system, as cod-liver oil and malt.

"Soothing" remedies should never be given without medical advice.

Membranous Croup is the other disorder which is confounded with "croup" proper, and mothers who tell you they have lost one or more of their children from "croup" are referring to this disorder. There appears to be a disease characterized by the formation of a membrane at the back of the throat, which is not true diphtheria. So difficult is it even for experts to decide between the two that a mother who suspects anything of the sort to be forming should lose no time in sending for her medical attendant, meanwhile isolating the little invalid entirely from the other members of the household, and reserving spoons, cups, plates, etc., for its special use.

Bronchitis or Bronchial Catarrh is a common disease in young children, and though the symptoms may not be severe in themselves, it is a condition requiring great care, as it often leads on to pneumonia (inflammation of the lungs), or to collapse of a portion of the lung.

Causes.—Sudden changes of temperature are no doubt responsible for the prevalence of this disease. A child taken out in the early afternoon, lightly clad, should always have a warm shawl provided for its return journey. Infants have far less power of resisting cold than adults, and their delicate organism is very liable to chills. There is no doubt a great difference in children in this respect, and also in the same child at different periods of its life. Rickety children and fat, flabby babies are very subject to

bronchial catarrh. Children with big tonsils and growths in the back of the throat (adenoids) are also very liable to it.

Teething, in many children, seems to predispose to this condition, and babies who "cut their teeth with bronchitis," to use the mother's expression, bulk largely in the visiting list of the family doctor.

The Symptoms of Bronchitis are *fever*, sometimes slight, sometimes considerable ; *cough*, of a loose, noisy character, which has a characteristic "bubbling" sound when the secretion is free ; *quickenened breathing*, accompanied by a moist, rattling sound, due to the movement of the secretion in the large bronchial tubes.

Treatment.—When medical help is delayed, keep the child in a room without draughts, and of an even temperature. By the way, every household should be provided with some simple form of thermometer. In cold weather, in places where the winter is at all severe, the fire should be kept up all night, and not allowed to go out until the sun has risen some hours. The child should be dressed in a loose flannel night-gown, and encouraged to remain in its cot, warmly but not heavily covered. Its chest should be rubbed with eucalyptus and sweet oil, equal parts, and if the breathing seems at all oppressed it is advisable to give a teaspoonful of ipecacuanha wine as an emetic, with the precaution stated under *croup*.

The air of the room should be kept moist with steam. An ordinary kettle on the fire, or on a spirit stove, will answer ; but a proper steam-kettle has

many advantages, as the long funnel can be brought near the child's bed. The moisture of the air inspired makes the secretion more fluid, and so the child can get rid of it more easily. The diet must be light and digestible and given at regular hours.

With regard to drugs, a warning note must be sounded against the great host of patent "cough mixtures." Nearly all contain sedatives, which tend to dry up the bronchial secretion, so making it harder to get rid of. The result is that the child's distress is increased and the healing process delayed. A simple mixture may be made of ipecac wine and honey, as in *Form. XI.*

Broncho-Pneumonia.—This is an extension of the former disease to the lung tissue itself, and is a very common complication of bronchitis in children under the age of three. The cough changes its character when the lung is affected, and becomes *short* and *hacking*. The child becomes more feverish, and there is often a peculiar *sucking-in* movement of the lower ribs with each breath drawn. The treatment before the doctor's arrival is the same as for bronchitis. *Form. XI.* may be used if at hand. A young infant will often rest better if allowed to lie on its face, and the position may be encouraged, as it eases the respiration for the time being. The same thing is observed in bronchitis.

Pneumonia, or Pleuro-Pneumonia.—This is not so common before the second year as afterwards. The illness begins suddenly, often with vomiting and sometimes with diarrhœa. Feverishness is a marked

symptom. The cough is not frequent, and would not be noticed much but for the pain it gives. The child will more often refer this pain to the stomach. The breathing is very rapid, and a curious grunting noise is noticed with respiration. Sometimes head symptoms are more prominent than those of the chest, and lead the mother to believe that the brain is the part affected.

Treatment.—The same general treatment as for bronchitis and broncho-pneumonia should be followed, but if the fever is severe and medical help is delayed, a powder (*Form. XII.*) may be given to reduce the temperature and to induce sleep.

CHAPTER IX

NERVOUS SYSTEM

THE nervous system of a young child is very unstable. Slight causes seem to produce serious results, as, for instance, convulsions may be caused by the presence of worms, the cutting of a tooth, or even by an undigested meal retained in the stomach.

It is often very difficult to determine the nature of a sudden attack of illness in a young child who cannot answer questions. Sometimes the little one will stop playing and run up to its mother with the information, "Sore here"—pointing to its head. The mother places her hand on the forehead and finds it hot; evidently the child has a headache; but from what cause? There is no need to jump to the conclusion that it is going in for "brain fever," that mysterious disease which novelists have made so peculiarly their own. A headache is often due to *indigestion*, and a dose of castor oil or magnesia, with restricted diet, is all that is necessary to cure it. It may also be due to *dental causes*, especially in countries where there is little or no chalk in the water. An inspection of the child's teeth will settle this question. Headaches undoubtedly also occur as the result of a *sluggish*

liver, and in cases of *defective sight*. If the mother knows that the child has been running about in the hot sun with nothing on his head, she will do well to get him to rest in a cool and darkened room, for sun-headaches in young children sometimes lead to convulsions.

Pain.—Young children are extremely vague as to the site of their pain. “It hurts here,” a little child will volunteer, placing its hand on its stomach ; but careful pressure over the abdomen at various points gives the most contradictory results. Often it is just a passing spasm and soon forgotten. If there is any tender spot which can be located, the mother will be wise not to ignore it ; should it fail to yield to an opening dose of medicine, further advice should be sought. So great is the demand on the child’s digestive system, as we have said before, that it cannot afford to have any part of it “out of gear” for any length of time.

Giddiness.—Young children often complain of giddiness when their livers are inactive, or when undue exposure to the heat of the sun has been allowed. Giddiness, however, is also a symptom of some forms of brain disease or disordered sight, and, if it persists, advice should always be sought.

Convulsions.—A convulsion cannot be called a disease in itself, but it is a symptom of many diseases of infancy, and its degree of danger is determined to great extent by the disease which causes it.

Conditions under which Convulsions are likely to occur

In children between the ages of six months and three years, brain disease as a possible cause of convulsions must be kept in mind, but other conditions of a less grave nature are far more common as a cause. Chief amongst them is the disease known as *rickets*, which is fully described in a previous chapter.

Indigestion is another common cause. The particles of undigested curd, retained in the stomach, may set up irritation in the nervous system, and produce a convulsion.

Fevers of all kinds may be the exciting cause of a convulsion, and it is sometimes the first indication of the onset of an acute illness.

Dentition.—As a rule, when children “cut their teeth with convulsions,” there is reason to suspect rickets; but no doubt there are children of perfect physical development who inherit an unstable nervous system, and the whole period of their dentition is marked by a tendency to convulsions.

Earache is another possible cause of convulsions, and any pain in the ear which does not yield to a little sweet oil with one drop of laudanum, warmed and dropped into the ear gently, should have further medical advice.

Screaming Fits or Night Terrors.—These do not occur as a rule before the end of the second year. In an otherwise healthy child they are usually due

to some error of diet; but it is noticeable that children who sleep with their mouths open on account of growths at the back of the nose (adenoids) are liable to "nightmare" and "night terrors," and when these are removed by operation, the child has no further trouble of this sort. Children of a nervous temperament, whose brightness makes them attractive playmates to the father on his return from business, will often start up two or three times in their sleep, recalling some game of the evening, in which a "Big, big dog," who, before bedtime, was recognized and welcomed as the father on hands and knees, now appears as a terror to their minds.

Treatment.—In the first case, more careful dieting and a purgative will probably be sufficient. All starchy and sweet articles of diet should be reduced to a minimum, as they set up fermentation. Cakes, pastry, jam, potatoes, and new bread are unsuitable articles of diet in these cases. In the other conditions, the treatment is also to remove the cause. Adenoids are always a menace to a child's health and development, and their removal will be of benefit to him in many ways.

In nervous children the remedy is to avoid all excitement at bedtime.

Chorea, or St. Vitus' Dance, is seldom found in children under six years of age. The signs of this disease consist mainly of *irregular movements* of the muscles of the arms, legs, and head, with some *weakness of the limbs*, and, occasionally, *loss of mental power*.

Children most liable to suffer from this disease are those of the nervous, excitable type. There is often a history of *rheumatism* in one or both of the parents, and a connection between the chemical changes in the body which bring about rheumatism and those which produce chorea has been proved beyond doubt. It must not be supposed, however, that all children with a family history of rheumatism are likely to have chorea. St. Vitus' dance usually appears suddenly, and may often be traced to a fright, to the mental strain of school work in a nervous and fast-growing child, or to the shock of family loss. The beginning of the disease is often mistaken for awkwardness or idleness, and children are punished instead of being taken to a doctor for advice. When the parents' suspicions are aroused as to the nature of the complaint, the child should be taken away from school and turned out to grass, both literally and figuratively. For some children a three months' sojourn in the country is undoubtedly the best cure. For those in high altitudes, a change to the coast, provided the time of the year is suitable, produces very good results. The question of drugs must be left to the physician.

Chorea is a disease which tells unfavourably on the general nutrition, therefore every hygienic measure known to the mother should be adopted in the child's interest. The *maximum of rest* and the *minimum of fatigue* must be ensured. In many cases children do far better in bed for two or three weeks than when walking about. *Cold-water sponging*, while the child sits in a hot bath, is a valuable tonic. Food must be

nourishing and easily digested. In my own experience, patients do better on a semi-fluid diet. Digestive troubles, including constipation, are very common, and will need suitable treatment.

Outlook.—Given favourable circumstances and an absence of complications, recovery may be practically assured. The two chief dangers are *exhaustion from the constant movements* in bad cases, making it impossible to get the right amount of nourishment or of sleep, and *heart weakness*, which is peculiarly liable to come on in the course of this disease. Hence the necessity of rest and of skilled medical advice.

Hysteria.—This disease does not at present appear to be a common one among children in our Colonies, owing partly to the hardy type of early colonists, who have handed down a fair proportion of their sturdy physique and level-headedness to their descendants; and also to the simpler and less strenuous character of the life abroad compared with that at home. It does exist, however, among children brought up in large towns, and attacks especially the type of child we have classed as “precocious.” It is an interesting fact of observation that *only* daughters are liable to this form of disease.

The modern view of hysteria is, that it is undoubtedly a disease of the higher centres of the brain; a curable one, if treated rationally, but one which, under unfavourable conditions, may lead to serious mental deficiency.

There is no doubt that a tendency to hysteria can be transmitted, but unless the child's training has

been injudicious, there is no reason why the disease should ever develop in children whose home atmosphere is healthy, and their minds diverted from their little troubles and pains by an interesting story or occupation. In other words, children in whom "unconsciousness of self" is cultivated will seldom, if ever, be found amongst the victims of hysteria. A child, on the other hand, whose troubles and disappointments are made much of, whose health and attainments are discussed in her hearing, and who remains glued to her mother's side while visitors come in succession to exchange domestic confidences, or dilate upon the mysterious illnesses of mutual friends, is likely to become an easy prey to this disease.

Signs of hysteria may be briefly described as a *perversion of sensation and emotion*, and, associated with the latter condition, is a morbid craving for sympathy and notice. A common form of hysteria in children is refusal to eat; the more the child is entreated to do so, the firmer its determination. Sometimes vague but severe pains are complained of; not uncommonly a temporary paralysis of one or more limbs is present. Headaches are very common, and often one special joint seems to be the seat of acute pain, most often the hip-joint.

A child may develop hysteria as early as the seventh year, but it is more common at the time of puberty, *e.g.* from the thirteenth to the seventeenth year.

Treatment.—The treatment in these cases is chiefly

moral ; the direction of a trusted medical attendant, preferably one who has known the child for some years, is a valuable aid to cure. Here, as in the last-named disease, the most satisfactory treatment consists in removing the child from school and sending it "out to grass." It is better, in such cases, that it should be with strangers, provided that a wise choice is made. The country is undoubtedly the best place for an hysterical child, as things move there with an even, unexciting tenor, and children find much to interest them in the daily routine of farm life.

General hygiene should be carefully attended to ; plenty of rest and good plain food, with absence of undue fatigue, will, in most cases, work a cure in time.

Epilepsy, or Falling Sickness.—This is a condition for which every mother will naturally seek prompt advice, but since it is apt to make its appearance for the first time entirely without warning, a few words about it may be of use to mothers in lonely places.

Childhood may be called the "convulsive" period, *i.e.* nerve storms are far more common in children than in adults, and as we enter upon the period of early adult life convulsions cease to occur. In the great majority of cases convulsions in infancy and early childhood leave no brain weakness which can, in any way, be traced. In a few cases, however, the child, after "outgrowing" the convulsions of infancy, may suddenly become subject to "epileptic" fits, either of the slight or severe variety. It is probable in such

cases that there is some *hereditary tendency* to nervous disturbances, not necessarily to epilepsy itself.

Symptoms.—An “epileptic fit” in children comes on quite suddenly as a rule, without any of the warnings which a grown-up person has. In a very *slight attack* the child may stumble suddenly when at play, a dazed look crosses his face, his colour fades, and a slight spasm alters his expression for a moment. The next moment he may be himself again, but he will probably complain of being tired and will want to lie down. Very often he falls asleep, and wakes up bright and happy. *In a severe attack* the child usually utters a cry and falls to the ground unconscious. The limbs twitch, the face becomes pale and convulsed, the tongue is caught between the teeth, and froth (saliva) collects on the lips. As a rule the attack is over in a few minutes, but in severe cases it may last an hour or more. Gradually the spasms relax, the child becomes conscious, but is sleepy, and has no recollection of having fallen.

Treatment of the actual fit consists in removing anything near the patient against which he may hurt himself; in loosening all tight bands and buttons, and, if possible, protecting the tongue by forcing a cork, to which a string is attached, between the teeth. The treatment of the *epileptic condition* must be left in skilled medical hands. Careful observation of the *exciting cause* of the fits will enable a watchful mother to avoid them in many cases, while strict attention to general hygiene will build up the child's constitution and so increase his resisting power.

Should an epileptic child go to school? I think not. The excitement of being with other children, which is such a healthy stimulus to an ordinary child, is apt to prove a nerve strain to the epileptic. Moreover, the possibility of a fit occurring in class must be kept in mind. Nervous children form an element of every class in a big school, and they should be guarded against the shock of seeing a schoolfellow fall down in a fit. In fact, cases have been known in which an epileptic child has infected several other children with "fits," simulating those of epilepsy, but purely nervous in character, the result of the strong impression produced on their nervous centres by witnessing a true fit.

CHAPTER X

THE INFECTIOUS DISEASES OF CHILDREN

THIS class includes all diseases which can be carried from one person to another, either by means of direct contact or through the medium of the air, soil, or water.

They can be divided into groups. We will mention the commonest group first—

Measles.	Mumps.	Enteric.
Smallpox.	Diphtheria.	Tuberculosis.
Scarlet fever.	Whooping cough.	Malaria.
Chickenpox.	Influenza.	

The first four of these infectious diseases are grouped together because there is a good deal of confusion with regard to their rashes. A description of each in tabular form may be the best way of clearing up this difficulty.

MEASLES.

The rash comes out on the fourth day of feverishness. It is mottled, "shotty" to the touch, and tends to form into crescents and half moons. It

SCARLET FEVER.

The rash appears within twenty-four hours from the commencement of illness, which begins with *sore throat and fever*. It appears first on

appears first on the forehead, back of neck, and then on chest. The rash is often seen on the roof of the mouth and at the back of the throat before it appears on the skin. *The appearance of a heavy cold in the head, with red watery eyes and feverishness, is suggestive of measles.*

SMALLPOX.

The rash appears on the third day of illness. It begins on the *face* first, near the hair. It consists of small red spots, arranged in groups. Fluid forms in them about the fifth day (vesicles), and by the ninth day becomes opaque (pustules). *Backache* is an early symptom.

the chest, but soon becomes general. It consists of red, raised spots, smaller than those of measles, and of a bright red colour, and so close together that they produce the effect of a scarlet flush all over the skin. In some cases the rash remains "patchy," *i.e.* limited to certain parts of the body.

CHICKENPOX.

The rash is usually the earliest sign of illness. It appears first as a few rose-coloured spots, scattered over various parts of the body, the *face* being a favourite part. These spots or papules fill with fluid in about twenty-four hours. A day or two later the clear fluid becomes milky, and they dry up. Meanwhile fresh spots come out and go through the same process.

These are the four diseases which are most often confounded at their beginnings. We will now mention some other points of difference between them, and give an outline of each.

Measles has what is called an *incubation period* of about ten days; in other words, ten days pass between the time the child is exposed to infection and that on which the first signs of illness appear. In some cases the incubation period may extend over

three weeks. The *symptoms* are feverishness, with signs of catarrh of the air-passages. The eyes look watery and suffused; there is often running at the nose. No doubt the disease is extremely infectious at this stage, and should the mother suspect the onset of measles, now is the time to isolate the child. Most probably, however, he will be considered to have a feverish cold only, and may not be kept to his room till the rash appears on the fourth day.

Measles, next to influenza, is the most contagious of all these so-called "specific fevers." The infection is carried by the air, and by means of the clothes of those attending to a child with measles, as well as by direct contact. As regards the period of isolation, the child should not be considered free of the infection for *three weeks after the beginning of the rash*.

Scarlet Fever.—The *incubation period* is usually from two to five days. First signs of the disease are — *Increase of temperature*, with occasionally a shivering fit or vomiting; *sore throat* is complained of before the rash is out. It is a wise plan, when a child has a feverish sore throat, to isolate it at once, as a precaution. Within forty-eight hours the typical rose-rash of scarlet fever will appear, and when fully "out," it will be found on the neck, chest, abdomen, and fore-arm. In all but very mild cases, the throat symptoms will be fairly severe for the first six days, after which they will manifest improvement, and in a favourable case the child will show by other signs that he is nearing the stage of convalescence. The rash fades about the end of the first week, and then

begins the desquamation or "peeling of the skin." This differs from the "peeling" which occurs, in a greater or less degree, after other forms of fever, in being more complete in character. The whole process takes about a month, but it may take six or even eight weeks for its completion.

Infective Period.—Scarlet fever is infectious from the beginning of its symptoms, and remains so until the peeling is absolutely complete. It must be remembered that the infection of scarlet fever remains in books and clothes for a considerable time, and those used by the patient should be thoroughly disinfected by dry heat where washing is impossible. All toys and books used in the sick-room should be burnt.

Chickenpox.—The *incubation period* is about fourteen days. The onset of the disease is not well-marked, and, as a rule, the appearance of the rash is the first sign of illness. The temperature rises with each successive "crop" of spots, but otherwise there are no special symptoms. The child is usually well within ten days of the appearance of the rash.

Infective Period.—From the time the rash appears until its entire disappearance; infection may be retained in clothes for a certain length of time.

Smallpox.—*Incubation time* about twelve days. Occasionally the characteristic rash of smallpox is preceded by a rose-red rash like that of scarlet fever, and this may be the first sign of the disease; usually, however, a certain amount of *headache* and *backache*,

with fever, mark the onset of this disease. The typical smallpox rash appears on the third day.

Infective Period.—The patient must be considered infectious from the onset of the first symptoms until the rash has completely disappeared. Special care must be taken when the *scabs*, formed by the drying up of the pustules, are separating that they shall not be carried off to the dustbin with the sweepings of the room, to prove a source of infection to neighbouring houses.

Mumps, Diphtheria, Whooping Cough, Influenza

Mumps (parotitis) is an acute infective disease which runs a definite course of a week or ten days, sometimes longer. The swelling is found above the angle of the jaw, extending to the cheek and ear. There is no sign of sore throat; unless an abscess should form, which is rare, the patient is convalescent at the end of ten days.

The *incubation period* of *mumps* is from a fortnight to three weeks. The patient must not be allowed to return to school for *three weeks* from the first appearance of the swelling.

Diphtheria.—An attack of feverishness, with a red and swollen throat and some running from the nose, should always make us watchful when diphtheria is known to be prevalent. Should the throat show patches of white membrane, a strong suspicion

of diphtheria will be aroused ; medical advice must be sought, and isolation of the patient carried out without delay.

Diphtheria, thanks to the discovery of *antitoxin*, is not nearly so fatal a disease as it was fifteen years ago. Notwithstanding this, it is one which requires the greatest care, since the poison of diphtheria affects both the heart and the nervous system. *Keep a child with diphtheria lying flat* throughout the illness on this account.

After the throat has been perfectly free from membrane for three weeks, symptoms of paralysis may show themselves, in the return of fluids through the nose, by unsteadiness of gait, and by difficulty in speaking, with a curious "nasal twang" in the voice.

Infective Period.—The *incubation period* is from two to five days. Isolation must be continued until every sign of the disease has disappeared from the throat for a fortnight.

Whooping Cough.—This disease does not begin with the characteristic "whoop," as many mothers think, but with a dry, "tickling" cough, worse at night and accompanied by a little feverishness. This is a very infectious stage, but one which is unfortunately seldom recognized, hence the rapid spread of this disease throughout a school or family.

Young children often do not "whoop" at all. Older children start this symptom about the third week of the cough.

Vomiting is a characteristic symptom in whooping cough, and if persistent may reduce the child's strength

considerably. A good rule is to give a child a drink of Bovril, chicken broth, or milk *just after* a fit of coughing, so that he may have partly digested it before the next attack comes on.

The complications of whooping cough are *convulsions* and *lung troubles*. Be extremely watchful during convalescence that the child gets no "chills."

Incubation period is from one to two weeks.

Infective period is uncertain, probably as long as the typical cough lasts.

Influenza.—This disease has made itself thoroughly at home in most parts of the civilized world during the last fifteen years. It does not always appear in the same guise, *i.e.* during one epidemic the symptoms will develop mainly in the lungs; in another, they simulate those of enteric or gastric-catarrh; and in a third, the symptoms suggest meningitis.

When influenza is suspected, isolate the patient promptly, and in all cases, excepting those of a very mild form, seek medical advice. Remember both relapses and second attacks are common. For this reason influenza should always be taken seriously, and children should be guarded against it as far as possible.

Incubation period appears to range from twenty-four hours to a week or more.

Infective period lasts until convalescence is established.

Enteric Fever, Malaria, Tuberculosis

Typhoid or Enteric Fever is conveyed to the system by a bacillus which has been allowed to contaminate the food or drink of healthy people through carelessness on the part of those attending the sick, or by the infection of the water supply.

It is rare under the age of five, and in older children is often a mild disease tending to recovery at the end of the second week. The fever also may come and go (remittent type) rather than persist, as in older people, for a definite period.

Every case of enteric fever, however mild, *must be kept strictly lying flat in bed* until the temperature has been absolutely normal for a fortnight. The reason for this will be apparent when we remember that the disease is due to inflammation of a considerable portion of the bowel, with ulceration of some of its glands. Sudden movements, therefore, may tear through the bowel, causing perforation and death.

The greatest care in the matter of food is also necessary. *No change should ever be made in the diet without the doctor's advice.* Many a little life has been sacrificed through the unwise indulgence of the child's friends, who could not withhold a coveted piece of bread and butter or cake at a critical period of the disease.

Disinfection of excreta is most important. This will be mentioned more fully under "Disinfection." Do not think, because constipation rather than

diarrhœa is the rule in children during enteric, that therefore the stools do not need disinfecting.

The *incubation period* is from fourteen to twenty-one days.

The *infective period* lasts until convalescence is fully established.

Malaria or Malarial Fever is conveyed to the system through the bite of a mosquito. Different forms of malaria are found, but the most common form in children is the "tertian" or "every-other-day" type.

The typical "shivers" which accompany an attack of fever are not, as a rule, present in children under five. *Vomiting* and *convulsions* often take their place, followed by collapse with blueness of the hands and feet, representing the "cold stage."

The *prevention* of malaria consists in avoiding the bites of the malarial mosquitoes. Strong scented oils, rosemary or eucalyptus, should be rubbed on the forehead and hands of all children living in malarious districts, and they should always sleep under mosquito curtains.

The *treatment* of malaria consists in giving quinine, but as the method of giving it depends on the special form of malaria, no general rule can be laid down. *Perseverance in using the drug* is the best way to prevent a recurrence of the attack.

Tuberculosis is in its right place when classed as one of the *infective* diseases. It appears in many forms during childhood, and it is the cause of many obscure symptoms which frequently puzzle both the

child's mother and the medical attendant. We may try to classify the various structures which may become infected with the tubercle bacillus as follows :—

1. The brain and its coverings : Tuberculous meningitis, tubercular abscess.
2. The lungs : Pulmonary tuberculosis.
3. The enveloping membrane of the abdominal organs : Tubercular peritonitis.
4. The bones and joints, leading to hip disease, spinal caries, knee joint disease, etc.
5. The glands, chiefly those of the neck and upper part of the chest, less frequently those of the abdomen.

It will be seen from this classification what a far-reaching disease we have to deal with. Although at the present time our Colonies, as a whole, may be said to be fairly free from tuberculosis, there are signs, most undoubted and convincing, that the scourge is spreading in our midst. Both the medical profession and the various Governments of our Colonies are now bestirring themselves to combat the spread of tuberculosis, but until we, as parents, assume individual responsibility in the matter, the fight will be an unequal one, and the disease will gain upon us.

What is our part in the campaign ? We must avoid, as far as possible, *all contact with infected persons*, both for ourselves and for our children. It may seem heartless to condemn the wholesale hospitality of former days shown to consumptives who landed homeless and friendless on our shores, or to criticize the system of receiving such infected persons on to farms or into families in town as boarders and paying

guests, but there is no doubt that this is one of the most certain ways of passing the disease on to our children.

Servants, whether white or coloured, should never be retained in our homes when our suspicion of disease in them has been confirmed by medical opinion.

Laundries carried on by coloured people are, to my mind, a possible source of infection, and should be inspected privately in the absence of compulsory inspection by Government.

Infected children should not be welcomed as visitors or playfellows to our families, and any case of a consumptive child at school which becomes known to the mother should be reported to the head mistress.

Our own children should be kept as far as possible at the high-water mark of health. This will be dealt with more fully in the chapter on "Hygiene of School Life."

Symptoms of Tuberculosis.—These vary with the seat of the disease. Enlarged *glands* will at once arouse suspicion, and advice will be sought. *Bone disease* and *disease of the joints* will be accompanied by pain at the site of the disease. In the early stage of hip-joint disease we must remember that pain is complained of in the knee, and not in the hip, as a rule. *Inflammation of the brain and its membranes* is too serious a condition to be overlooked, and therefore medical aid will be promptly summoned. If delay of necessity occurs, owing to distance, the child must be put to bed in a cool and darkened room, lightly covered, the hair cut as close as possible, and ice, if

available, or, if not, vinegar and water, applied to the head on a handkerchief, and constantly changed. A good dose of castor-oil or rhubarb and magnesia must be given at once, and milk and water or milk and barley water given as the only diet till the doctor arrives.

Tuberculosis of the Lungs is often a very obscure disease in young children. There may be no cough and very little rise of temperature. A watchful mother will notice that the child is not thriving, is easily tired, and often a little flushed, with quickened breathing on exertion ; that he has a dainty appetite, and an increase of thirst. Such symptoms, slight in themselves, should arouse her suspicions, if they persist in the absence of any apparent cause, and should lead her to seek medical advice.

Tuberculosis of the Peritoneum.—This form of the disease will, in most cases, have sufficiently urgent symptoms to call for immediate medical treatment. There are, however, some children who suffer from tubercular peritonitis and from tubercular disease of the glands in the abdomen, in whom the symptoms are very obscure. Wasting, with occasional attacks of diarrhœa, are sometimes the only signs of the disease. The mother, if her fears are aroused, probably “tries the child for worms,” with no success, and only seeks medical advice far on in the course of the disease.

Treatment of Acute Infective Diseases

General Remarks on Treatment.—There are two things to be considered when we are dealing with any form of acute infective disease.

1. How shall we act in the interest of the patient ?
2. How can we safeguard the interests of others ?

When any acute infective disease enters a household, or is suspected in any family, it is necessary at once to consider the safety of the other members of the family. There appears to be a good deal of fatalism in the Colonies, as at home, with regard to the more common forms of infective disease. "If they are to get it, they will get it," say the parents, and no precautions are taken to guard against the spread of measles or whooping-cough in a family or neighbourhood. Now, although one has considerable sympathy with the mother of many children, who feels a good deal of time and expense may be saved by letting these illnesses "run through the house," it is by no means always desirable that they should do so. We have said elsewhere that the first seven years of a child's life is the period of most rapid growth and development ; therefore, while we cannot altogether guard our little ones from the added strain of incidental disease, we are not justified in exposing them to it unnecessarily. Whooping-cough and measles are the most infectious of these diseases ; yet a large proportion of children escape them. Many large families of children grow up in country districts

where farms are far apart without having suffered from any form of infectious disease. The families which are not so fortunate can often trace the infection to natives or coloured servants in their employ. We may reasonably hope, therefore, that our care in guarding infants and young children from infective disease will be, in a good many cases, attended by success.

The first method to be adopted for preventing the spread of disease is *isolation of the patient*. For the graver forms of infectious disease "isolation hospitals" are being freely used in England ; but, unless an epidemic occurs, very few such institutions are maintained in our Colonies in working order at the present time.

Isolation must, therefore, be carried out in a room, the larger and the farther removed from the rest of the house the better. We must not wait until the exact nature of the disease is discovered before isolation is thought of ; but should the child be taken suddenly ill with feverish symptoms, associated with signs of severe sore throat or catarrh of the air-passages, he should be removed to a suitable room, or be isolated in his own room, until the nature of the disease is apparent. As soon as it is clear that the patient is suffering from an infectious illness, the neighbours should be promptly informed, that they may protect themselves from infection, if possible. With regard to other members of the family, it is desirable, when possible, to remove the younger ones at least to a house at some distance.

Disinfection.—This is the other means by which we can prevent the spread of disease to others. The general principles of disinfection are the following :—

1. All clothing used by the patient must be put to soak in a 1 in 40 solution of carbolic, or similar disinfectant, before being washed.

2. There should be a basin of disinfectant always at hand, in which the attendants of the patient should wash after doing anything for him.

3. The use of a sheet dipped in carbolic and hung across the patient's door is a useful preventive of infection.

4. All chamber-utensils used by the patient should contain disinfectant, and in the case of dysentery and enteric fever, where municipalities do not make special provision for their treatment and removal, all the evacuations should be disposed of by burying in an isolated spot, with quicklime.

5. *Tepid baths* should be taken during convalescence, with the addition of Condyl's fluid, and the skin should be smeared with carbolic oil during desquamation, or separation of scabs.

Care of the Patient.—Since the child suffering from any form of infective disease will, in his own interest and that of other people, be required to spend several weeks in his room, we must keep it as cool and airy, and at the same time as cheerful-looking, as possible. The least valued toys and pictures should be given him, as they must be burnt afterwards. For an older child cutting out pictures and making a scrap-book is a source of endless amusement in convalescence.

Older children can enjoy stories read to them ; but care must be exercised that a book taken into the sick-room returns no more to the nursery shelves. This rule need not apply to enteric fever, malaria, and tuberculosis.

Diet.—In the absence of any special directions the diet must be light, and consist mainly of milk ; beef-tea, chicken broth, barley water, Bovril, and milk puddings are all suitable. Eggs and bread and butter should not be given if there is a rise of temperature. Each form of disease needs special precautions during convalescence, as, for example :—

In *Scarlet Fever* the kidneys are very liable to inflammation, and therefore the work given them must not overtax their powers. Overfeeding must be strictly guarded against when solid food is resumed.

In *Whooping Cough*. Remember the resisting power of the lungs is at a low ebb, and pneumonia and tubercular disease may attack the child should he be exposed to a chill, or his strength further reduced in any way. The nourishment in whooping cough should be given, as far as possible, in a concentrated form.

In *Enteric Fever*. Here the rules of diet will be strictly laid down by the physician, and the mother must not allow the least deviation from them. This is quite as important during convalescence as during the acute stage of the disease.

The Use of Drugs during the Infective Fevers.—It is wiser not to use any drug unless prescribed by the medical attendant. Remedies for whooping

cough, malaria, etc., are legion, but it remains to be proved whether they benefit materially more than the small section of the public whose proprietary articles they are ; not that there is nothing to be said in favour of the drugs themselves—these are often the result of careful study and elaborate chemical and scientific experiment—the trouble comes in their application. An artist was once asked what he mixed his paints with, and he replied, “With brains, sir.” We want brains behind our drugs ; in other words, we want a good, all-round knowledge of physiology and pathology, as well as a special knowledge of the course and characteristics of the disease we wish to cure. Failing such knowledge, drugs must be regarded as rather in the nature of a surprise-packet than as a precise weapon of warfare in combating disease.

Baths are often most useful in reducing temperature, but are apt to exhaust a child unless skilfully given. Tepid sponging is a safer means in the absence of medical direction, and can be applied two or three times a day with the precautions mentioned under “Baths” (Appendix).

CHAPTER XI

HYGIENE OF SCHOOL LIFE

AT an average age of seven the child enters upon a systematic course of mental training. Whether he receives this in a day-school or as a boarder, depends upon the preferences or circumstances of his parents. When a boarding-school is chosen, the hygiene of school life passes from the parent's jurisdiction into that of the school authorities; and as many boarding-schools in our Colonies, both for boys and girls, are situated in excellent climates, and fulfil, in addition, other hygienic conditions, they act as sanatoria of a very satisfactory kind to the growing minds and bodies received into them. Such schools, however, are beyond the means of many parents, while others prefer to keep the family circle unbroken during school days. In this latter case the hygiene of school life is a responsibility shared between the parents and school authorities.

There seems to be a certain amount of difficulty in reconciling the mental and physical interests of some children during the period of school life. High summer temperatures are, no doubt, partly responsible for this. Children who learn well and quickly during

the cooler months may droop and find their lessons burdensome as soon as the heat begins. Their appetite fails, and their energies flag. For such children a change to a boarding-school in a cool, mountainous district, is desirable. If this is impossible, a consultation between the parent and school Head will usually result in some compromise which will lessen the strain to the child. It is impossible for any one unacquainted with the practical working of a school curriculum to suggest the nature of such a modification ; but it has often occurred to me whether, during the two or three summer months in which our schools are in session, home lessons might not be reduced to a minimum throughout all classes, thus practically making "head work" for the day terminate by lunch time.

The Routine Hygiene of School Days.—A most important point in regulating the life of a school child is that he should have *time for everything*. One hour at least must be allowed for dressing and breakfast before the child starts for school. This time allows for the proper care of the body, which is the best preparation for the morning's study. The crowding of dressing preparations and breakfast into half an hour leads to the neglect on the part of the child of the morning habit, and lays the foundation, especially in girls, of much ill-health in after-life.

Baths.—In the summer months, an evening or an afternoon bath is often more refreshing to a child than a morning one. Tepid or warm baths are safer on the whole than quite cold ones during the summer

season, when the skin is acting pretty freely, as a rule. In the colder months, whichever form of bath best suits the child should be taken every morning.

Clothing.—I have a strong preference for woollen clothing throughout the year, and should like to see every school child provided with natural wool combinations, or silk and wool where means will allow. These can be had in any quality, and are to my mind far safer than cotton. The upper garments should be few and light. The present style of yoke dresses for girls seems both sensible and pretty; “sailor” dresses are also suitable, as they make no attempt to define a waist-line. The habit of wearing the hair loosely over the shoulders has one great disadvantage—crooked backs can be safely concealed under its sheltering veil. Mothers would do well to harden their hearts against this pretty fashion, and insist on the inartistic “pigtail,” or keep the hair short until late in school life.

Diet.—The meal times of a school child should be regular and unhurried. The simpler the diet the better. Meat once a day is quite often enough. Wholemeal bread, porridge, milk puddings, eggs, and fruit, both fresh and stewed, will be found sufficient for the remaining meals. Simple boiled puddings, custards, blanc mange, and jellies, with home-made jams and stewed fruit, will contribute a welcome and ample variety to the diet of a school child. *The midday meal* is often taken at school, and in the case of younger children it marks the end of “lessons” proper during school hours. For older

girls and boys it may sometimes be wiser to provide a light lunch, and let them wait until after school hours for their more substantial meal, thus ensuring that renewed mental effort shall not follow closely upon the heaviest meal of the day.

Recreation.—A child should be required to spend at least two hours in play before touching his home-lessons for the next day, nor should these occupy more than an hour and a half in the case of older, and three-quarters of an hour in the case of younger children. An interval of an hour must be allowed whenever possible between home-lessons and bedtime. Half-holidays should be so planned for that the maximum of enjoyment and recreation may be got out of them, and not spent in aimless saunterings about the house or garden with no particular object in view.

Weight and height in school children are not only matters of interest to themselves and their parents, but also of considerable importance. Every child should have his weight registered four times a year in a book kept for the purpose, and at the same time he can be conveniently measured against a wall, and his height marked off with a date written above. Most physicians are supplied with note-books containing tables of average heights and corresponding weights, so that a mother who fancies her child does not weigh enough in proportion to his height can refer the matter to her medical attendant.

Growing Girls.—Leaving now the questions in which children, whether boys or girls, need much the

same treatment, we pass to one which lies at the root of our social well-being. How are we to guide our daughters through the critical period of girlhood and ensure their growing into healthy and happy women? Many of us can look back upon a girlhood in an English home, full of healthy interests and amusements; to travels on the Continent for purposes of study or pleasure; to vigorous tramps with school-boy brothers, varied by games of hockey and tennis. Life in most Colonies undoubtedly offers girls fewer advantages of this nature than does the homeland. To some extent, also, the greater enervation of a warm climate influences our social atmosphere, and our interests tend to narrow down to those of a personal and domestic character.

How are we to minimize these Disadvantages?—In the first place, we need to be close and warm friends to our daughter, while still retaining our parental authority. We must establish such intimate relations with her that her confidence on all matters of health can be won and retained; and, while reverencing and cherishing the reticence which all girls should have on matters touching upon the mystery of sex, we must give her wise counsel as to the care of her own health. To neglect such a duty from feelings of false modesty is to deny our daughters their birth-right of sound minds in sound bodies, and the instruction we are too "modest" to give will be gained with much unnecessary disturbance of mind, possibly at the sacrifice of bodily health, through other less accredited sources. Such "false modesty" is a

contradiction in terms ; true modesty comes from a reverence for the mysteries of life, which are only "common and unclean" when translated into language unbecoming to their dignity as the vital factors of our human economy.

Avoid all Discussion of Ailments before Growing Girls.—This will apply, of course, equally to all children ; but we are considering a special class just now. It is the result, no doubt, of our somewhat narrow social interests that the ailments of ourselves and our friends find such a prominent place in everyday conversation. One might almost imagine from the air of chastened pride with which some of our acquaintances refer to the subject of health that an "operation," the more mysterious in character the better, is regarded by them as the *cachêt* of good society.

We want our daughters to grow up free from all expectation of, or interest in, disease. Let them study physiology and the laws of health by all means. When wisely taught, these subjects are a useful mental training, and may become a physical safeguard. Let them enter into and sympathize with the mysterious joys connected with the appearance of a little new life, but do not allow any commonplaces on the subject of "good times" or "bad times" to be mentioned in their hearing. Make them understand that the mystery of birth is only one degree less awe-inspiring than that of death, and they will not lightly seek to draw aside the veil which shields the Holy Place of motherhood from their view.

Never discuss the Health of your Children before them.—A child's mind, more especially the mind of a growing girl, is often deeply impressed by a chance remark of mother or doctor with regard to her condition. Some words taken out of their true context will harm a child for years. As for example: A child heard the end of a discussion about him of which the sentence, "He may die on the spot," reached him. The child recovered, but for years after he went about in fear and trembling lest he should have the misfortune to set his foot on the fatal "spot."

Give each Growing Girl some Special Interest on leaving School.—The years immediately following her school life are the most unsatisfactory of all to many girls. At first liberty is sweet—nothing special to do and no fixed time for doing it. Soon this liberty becomes thralldom. I would ask every girl, as I would ask a boy, "What occupation or course of study will you take up on leaving school?" It is not necessary that a girl should choose a profession or business as her brother does, but she should have some special hobby—music, painting, cooking, dress-making, gardening, etc., and learn it in a thoroughly professional way. Some girls will prefer a definite course of study for higher examinations, and a certain number will aim at a profession. The object to be attained is the same in each case. We want our daughters to realize that every day must have its hours of definite mental employment if they are to keep their brains in a condition of "tone" and balance. Home duties and social obligations will

not be crowded out if the girl manages her time well. The habit so often formed by ex-school girls of running in and out of each other's houses during the morning hours, which are the best working hours, for the discussion of trivial subjects, is a dissipation of time and cannot fail to produce a condition of idleness of mind which may, and often does, persist through life.

Recreation.—This often misused word really implies that some mental and physical energy has been parted with and is to be made good. Change of employment is often the best kind of recreation, and a girl who gives up a certain portion of her day to study will find her home duties and social occupations a real rest and enjoyment.

Far otherwise is the case with the "butterfly" girl, who is always at the beck and call of "roving" spirits like herself. House duties become irksome because she has accustomed herself to aimless meanderings among her friends. Social functions are wearisome, since she has met her kindred spirits earlier in the day. We must try to get our girls to understand that *a purposeless life means boredom*, and save them at the very beginning from the consequences of such an existence.

Exercise.—No doubt athletics for girls are sometimes overdone in these days, and one certainly would not recommend the more violent forms of them to girls in hot climates. A regular walk in the cooler part of the day is one of the best, if not the very best, of exercises, and within the reach of all. Tennis

is excellent in moderation, but an all-day tournament in the blazing sun is a pastime in which most girls are wiser to act the part of spectators. Rowing, swimming, and hockey I consider valuable exercises for girls when they can be obtained.

We must keep a High Ideal of Physical Perfection before our Girls.—The old idea seems yet to linger in some Colonies that delicacy of health is rather a charm than otherwise in girls, and its possessors sometimes regard it as part of their social capital. Let us make our daughters understand that there is no beauty like the beauty of health, and no charm like the unconsciousness of one's physical organization. A girl who always expects sympathetic inquiries after her backache, or headache, the pain in her side, or the result of her last visit to the dentist, is training herself to be one of the future bores of her social world. Discussions on health must be banished from our drawing-rooms if we are to keep before our daughters this ideal of physical soundness. Solomon stated one of the foundation rules of hygiene when he said, "As a man thinks in his heart, so is he." By allowing our daughter's imagination to exercise itself on mysterious aches and pains hinted at in her presence by her mother's acquaintances, we produce in her a certain amount of mental enervation, and so lower the general standard of her health.

It is necessary, therefore, to keep a girl's *mental atmosphere* wholesome, in addition to providing her with a healthy physical environment. Suffering, disease, and death are all essential factors in the

scheme of human existence, and none of us can escape their lessons and their revelations; but for this very reason we do not want young people to dissipate their sympathies before they reach the age when their judgment will be sufficiently formed to translate such sympathy into action. Therefore, I would guard a girl from books which treat in a cavalier fashion the deeper issues of life; from plays where the heroine claims the interest of the audience solely on the ground that her past has been one which, were she a social acquaintance, would receive their unhesitating condemnation; and from those which, under the cloak of a high moral or religious purpose, treat the playgoer to scenes of old-time licentious revelry as a background to virtue.

Lastly, we want to place before our daughters a high ideal of the home as the all-important unit of our social fabric. A girl can gain in her own home such a practical experience of social ethics that she will be seldom at a loss in her after life. We can so train her through this home environment that she will be fitted for the noblest expression of life's duties and obligations, and so fulfil the highest traditions of her sex.

CHAPTER XII

NURSERY EMERGENCIES

Insensibility

Falls on the Head.—A fall on the back of the head from a swing or high chair will sometimes stun a child for a few minutes.

Treatment.—Place the child flat on the floor or couch with one pillow under the head, and throw a little cold water over the face. Keep him lying down for an hour, or longer if any headache is complained of on recovering consciousness.

Fainting Fit.—Children sometimes faint during convalescence from prolonged illness, when first allowed to be up and about again, or from other incidental causes. A fainting fit may be recognized by the limpness of the body and pallor of the face. The absence of all convulsive movements will distinguish it from an epileptic "fit."

Treatment.—Lay the child flat on its back without a pillow, loosen the clothes about the neck and chest, bathe the face with cold water, and let plenty of fresh air into the room. Apply smelling salts to the nostrils, if at hand (burnt feathers answer the

same purpose). "Flicking" the chest with a corner of a wet towel, and slapping the hands, may be tried if the faint is prolonged. Keep the child lying down for an hour or more after recovery. A few teaspoonsful of broth or Bovril will be useful in restoring the child to his normal condition. If the child is under medical treatment, the occurrence of the fainting fit should be reported at the next visit.

Sunstroke.—The signs of sunstroke are giddiness and nausea, sometimes actual vomiting, followed by a drowsy semi-conscious condition. The eyes look bloodshot, the skin is hot and dry, the breathing is quickened, and occasionally convulsions supervene.

Treatment.—Place the child in a cool, darkened room, on a bed or couch, raise the head with pillows, uncover the neck and chest, and wrap wet towels—using iced water when possible—round the whole of the upper part of the body. Apply ice to the head if at hand; if not, use a handkerchief dipped in vinegar and water. Change these cold applications frequently till consciousness returns. Do not cover up the patient till he is fully conscious again, when he may be placed in bed and carefully watched.

Slight Heat Stroke.—Children frequently suffer from a slight form of heat-stroke after running about in the hottest part of the day. It is enough in these cases to place the child on his bed, darken the room, and apply cold vinegar and water to the head.

Fits

Epileptic Fits.—The symptoms are convulsive movements, following on a sudden sharp cry, during which the patient falls to the ground. During the convulsion the body may be thrown into various contortions ; the tongue is often bitten, and foam (saliva) collects on the lips. After the actual “fit” is over the patient may be drowsy for a time, and finally fall asleep to wake up after some hours in his usual condition.

Treatment.—During the convulsive stage, put the child in a safe position where he cannot hurt himself—the middle of the floor is the best place. Remove all chairs, etc., in his neighbourhood. Notch an ordinary wine-bottle cork in the centre, and tie some string or tape around it ; force one end of the cork between the teeth to prevent the tongue being bitten. The tape is a safeguard to prevent the cork from going too far into the mouth. Loosen all articles of clothing on the body. Do not try to hold the patient or to give him anything by the mouth.

When the convulsive stage has passed, place the child on his bed, and encourage sleep. Give some milk or Bovril on waking, but no drug or stimulant.

Hysterical Fits.—These sometimes occur in highly excitable or delicate children. They begin with violent laughing, or sometimes with sobbing, and, if allowed to go on, will end in twitchings of the limbs, while the child falls down semi-conscious.

Treatment.—The fit must be checked at its

beginning. When the child shows signs of an attack, take it away from the other children into a quiet room, and insist on self-control under pain of a whipping. Should the child fail to recover itself in a minute or so, this threat must be executed by a few smart slaps on the hands. Do not pet or fuss over the child, but let it rather consider a certain amount of disgrace attaches to such an exhibition of "nerves."

Convulsions. — *Symptoms.* — A child is often peevish and fretful before the occurrence of a convulsion. During the fit the body first becomes stiff, the skin cold and clammy, the pulse weak and fluttering. The child lies unconscious with half-closed lids. This stage of *rigidity* is succeeded in a few seconds by one of *convulsive movements*, during which the muscles of the head and face twitch, and the limbs jerk violently. Sometimes one fit follows another in quick succession, or the convulsive stage may be followed by one of stupor, which gradually passes off, and the child falls into a natural sleep.

Treatment.—Place the child at once in a hot bath, as warm as the point of the elbow can stand. Let him remain in from ten to twenty minutes; meanwhile, keep his head cool with a handkerchief or sponge, constantly dipped in cold water. Give a dose of castor oil as soon as the attack is over.

Burns and Scalds

Burns are caused by dry heat.

Scalds are caused by steam, boiling liquids, or moist heat.

Burns may be either slight or severe, and are usually spoken of as being of three degrees—

1. The reddening of the skin only.
2. Formation of blisters.
3. Destruction of tissues beneath the skin.

Treatment.—Two conditions must be kept in mind: (*a*) The local injury; (*b*) the shock to the system.

Frequently the “shock” of a burn is so severe that it is necessary to treat it before attending to the burn itself. “Shock” must be treated by hot bottles to the feet, and warm blankets over the body. This is one of the very few cases of emergency where stimulants are beneficial. From fifteen drops to a teaspoonful of brandy, *well diluted*, may be given, according to age, to a child between one and ten years. Every effort must be made to soothe the little one, and no dressing of the burn should be attempted until the first shock has passed off. Burns of the second and third degree always call for prompt medical treatment.

Treatment of the Burn.—The clothing must be removed with the greatest care in order not to break the blisters. Cut away the part that is in contact with the burn. The best dressing, if at hand, is one made of *equal parts* of olive or linseed oil and lime water. Failing this, a solution of washing soda may be applied, or ordinary vaseline used as a temporary dressing. The remedy selected must be spread on a soft linen rag, and gently bound round the part with a dry roll of linen or old flannel. Boracic ointment

(see Appendix, *Form. XV.*), mixed with an equal part of vaseline, makes an excellent dressing for all burns of the *first degree*.

Burns from Acids.—Throw water over the burnt part, then pour a solution of *washing soda* slowly over. Afterwards treat as an ordinary burn till medical help arrives.

Burns from Alkalies (quicklime, caustic soda, etc.).—Throw water over the part, then pour a *weak* solution of vinegar and water slowly over. Afterwards treat as an ordinary burn till the doctor's arrival.

How to Extinguish the Flames from Burning Clothing.—Roll a heavy rug, coat, blanket, or a woollen dress-skirt tightly round the child. Older children may be thrown on the floor in order more effectually to apply the treatment.

Cuts and Bruises.—All cuts must be treated on the following principles:—

1. Stop the bleeding.
2. Cleanse the wound.
3. Bring the edges of the cut together, and keep the part at rest.
4. Protect the wound by a covering (dressings) from outside dust or dirt.

Before touching any cut, *wash your own hands*.

To Dress the Cut.—First, *stop the bleeding* by soaking a piece of linen in Condyl's fluid—2 table-spoonsful to a pint of warm water. Hold it firmly against the wound for a minute or two. Should the bleeding come in "spurts" (arterial bleeding), and direct pressure fail to control it, a handkerchief or

bandage must be tied tightly round the limb *above* the wound, and if necessary this can be tightened by inserting a pencil or smooth stick between the bandage and the skin and twisting it round two or three times. This must not be removed till medical help arrives. A person who has never been taught how to apply this latter method will be wiser to trust to direct pressure with the fingers.

As soon as the bleeding has stopped, or nearly so, cleanse the wound thoroughly with the same lotion and bring the edges together with "strapping" (sold by all chemists). The strapping must not be as wide as the wound itself, but should cover the middle only. Now apply a pad, a little larger than the wound, of lint or linen which has been soaked in and wrung from Condyl's fluid lotion or carbolic lotion, 1 in 40 (one teaspoonful pure carbolic acid *well stirred* into a breakfast-cupful of warm water). Over this place dry lint or cotton wool, and bind the dressing on with a firm bandage. A very useful bandage for the home can be made of a piece of old linen, a little over *one yard square*. This can be folded either as a triangle or as a narrow or broad bandage. The former is more useful when used for support, *e.g.* as a sling. The narrow or broad folded patterns do better for keeping dressings in place.

Poisoned Wounds.—If a wound is known to have become infected by dirt or any poisonous material, wash thoroughly with strong disinfectant. Carbolic, 1 in 40, is one of the best, and then dress with *hot* pads soaked in the disinfectant, and change every two

hours till all signs of inflammation have disappeared from the part.

Insect Bites or Stings.—Try to remove the sting by pressing the end of a watch-key, or other small key, over the part; then wash the wound with a solution of ammonia (Scrubb's), a teaspoonful to a breakfast-cupful of water, common washing soda, or Condyl's fluid lotion.

Snake Bite.—*Send at once for medical assistance.* Meanwhile, place a tourniquet, as described in arterial hæmorrhage, *above* the wound, *i.e.* nearer the heart than the wound, to prevent the poison entering the general circulation, if possible. Wash the wound thoroughly with *warm* water or Condyl's fluid lotion, to encourage bleeding. Sucking the wound is of no use unless done immediately, and the lips of the person who sucks must be free from cracks or sores.

Stimulants must be given freely. Sal volatile (*Eau de Luce*), brandy, and strong coffee are the best.

Bites of Mad Animals must be treated as snake bites.

Bruises.—These are best treated with a cooling lotion. A very good one is made with two table-spoonsful of methylated spirit to half a tumbler of cold water. Bathe the bruise with it for a few minutes, and then dip a pad of lint or linen into the lotion and bind it round with *one* fold of linen, to allow of evaporation.

Sprains.—A sprain is the straining or tearing of the bands or ligaments which surround a joint by a

sudden twist or violent movement, as in swinging, climbing, wrestling, etc.

The symptoms are pain and swelling.

Treatment.—Put the painful joint at rest by a sling if it is the upper limb, or by rest on a bed if the hip or leg is affected. Apply the cooling lotion as mentioned above, or, if cold cannot be borne, wring flannels out of hot water and apply them to the part, changing them as soon as they cool.

Dislocation.—A dislocation is a displacement of a bone at the joint, and it must be treated as a sprain until the doctor's arrival.

Broken Bones.—The bones most usually damaged in children are (1) the collar bone, and (2) the bones of the arm and forearm. Next in frequency come those of the thigh and leg.

Signs of Fracture.—Loss of power in the limb, pain, swelling, and alteration of shape at the site of the injury.

Treatment, until the doctor arrives, consists in *keeping the injured limb at rest.* This is best done in the case of a child by placing him on a bed and steadying the limb on either side by a pillow or rolled-up garment. Children do not bear handling well, and therefore it is unwise to attempt even the simplest form of splint until the doctor arrives. An impatient movement on the part of the child might convert a simple fracture of the bone into a compound one, by forcing the bone through the skin.

Poisons.—If a child has been discovered eating poisonous seeds or roots, or is accidentally given the

wrong medicine, or has been found helping himself to the contents of a bottle containing any powerful drug, the treatment must be prompt, while medical advice should be sought in all cases.

1. Give an *emetic*. Mustard and water, a table-spoonful to a tumbler of hot water, is a good and safe one, and can be repeated if necessary.

2. Follow this by a dose of castor oil or magnesia.

3. If the child shows signs of collapse give brandy, from fifteen drops to two teaspoonsful, according to the age, ranging from one to ten years. Sal volatile is also useful, from five drops to a teaspoonful, according to age, in a little *warm* water. Strong beef tea may be given later.

Poisoning by Acids, or by Corrosive Substances, must *not* be treated by emetics. The best treatment in this case is to give soothing substances by the mouth: milk, barley water, raw eggs, olive oil, gruel, or linseed tea.

Foreign Bodies in Eye, Nose, and Ear.—A speck of brick dust in the eye is best removed, if on the upper lid, by drawing it down over the lower lid till its under surface is swept by the latter, or by everting or folding it back to expose the whole under surface. Very few children will stand this latter method.

In the case of a particle lodged under the lower lid, draw the lid gently down and remove the speck with the corner of a clean, soft handkerchief, dipped in warm water, or warm boracic lotion.

The feeling of soreness after the removal of a foreign body from the eye is quickly soothed by

a drop or two of pure *castor oil* placed just inside the lower lid.

Foreign Bodies in the Ear and Nose.—Children are sometimes given to inserting mealies or beads into the ear or nose. *Never try to get them out with hair-pins* or other domestic instruments. If gentle syringing with warm water will not dislodge them, take the child to the doctor.

Foreign Bodies in the Throat.—*Choking.*—Some children have a habit of putting coins, buttons, or other small articles into their mouths, and occasionally these slip back into the throat. In most cases they are swallowed, but sometimes the thin edges catch in the soft muscles at the back of the throat and produce violent spasms, with sensations of choking. Should this occur, a smart slap on the back between the shoulders will most likely dislodge the offending body; if it fails, take the child up by his heels and slap the back vigorously. A finger passed to the back of the throat sometimes succeeds in dislodging the substance if the other methods fail.

Should the foreign body have been swallowed, it is well to give a meal of porridge, or sponge-cake soaked in milk, which will wrap round the sharp edges and protect the delicate walls of the stomach and intestines during its passage through the alimentary canal.

Nose Bleeding.—This may be caused by a blow or may be the result of constitutional disturbance.

Treatment.—Undo all tight clothing about the neck and make the patient sit *upright* on a couch or

sofa, with the head thrown back—*not* held over a basin. Raise the arms above the head and hold them there. Place a wet, cold sponge on the back of the neck and another over the nose, compressing the nose between finger and thumb for a few minutes. If the bleeding continues, syringe out each nostril with alum and water (a teaspoonful to a pint), and insert a plug made of soft rag into each side, dipped in the same solution, afterwards.

Earache.—All cases of earache should be taken to a doctor for examination. For immediate relief a few drops of olive oil, with three drops of laudanum, may be warmed and dropped into the ear, and a small piece of cotton wool inserted. A hot linseed poultice over the ear, in addition, will usually soothe the little one to sleep.

Toothache.—A visit to the dentist is desirable in all cases of toothache. As a temporary remedy a little cotton wool moistened with oil of cloves, or with a drop of carbolic acid, or a small piece of bicarbonate of soda, may be gently inserted into the cavity, and pressed home with the eye of a darning needle, or a steel crochet hook. Holding hot water in the mouth, or cold water sometimes, stops the pain for a time.

APPENDIX

Baths

THESE are of four kinds, and when ordered specially as part of a course of treatment, should always be tested by a bath thermometer.

A hot bath ...	...	...	...	Temp. 100° to 98° Fahr.
A warm bath	...	...	...	„ 95°
A tepid bath	...	...	...	„ 85°
A cold bath	...	...	...	„ 65°

The hot bath is of great use in *convulsions*. In the restlessness of *dentition* and *rickets*, a hot bath at bedtime will often ensure several hours of quiet sleep. From five to ten minutes is long enough to use this form of bath.

The warm bath is the ordinary bath for cleansing purposes, and may be used for fifteen minutes at a time.

The tepid bath may be used as a routine morning bath for children over three years of age. It is not so good a tonic as the cold bath, but many children do not stand cold water very well.

The cold bath is an excellent tonic provided the reaction is good, *i.e.* a glow succeeds the plunge as soon as the child is dried. Should the child shiver and look blue and miserable while being dressed, the tepid bath should be substituted, or a warm bath given and cold sponging of the back and shoulders be resorted to while the child sits in the warm water.

Mustard Baths

These are made by adding two tablespoonsful of mustard to a gallon of water. The temperature should be the same as for the hot bath.

These baths are useful in cases of collapse, but, excepting in emergencies, they should not be given without medical direction.

Home-made Vapour Baths

The best way to give a vapour bath to a child in bed is to fill half a dozen beer or stout bottles with boiling water, cork them well and place them in stockings. The child must be laid undressed on a blanket and the bottles placed around him. The covering bedclothes must be raised by a folding towel-horse, or similar contrivance, placed beneath them. These baths can be used from twenty minutes to half an hour.

When the child has perspired freely, dry him quickly, put on a flannel night-gown or pyjama suit, and place him between dry blankets.

Hot and Cold "Packs"

A pack can be made with a thin blanket or bath towel, wrung out of hot or cold water, according to the variety of pack desired, and wrapped closely around the child, who must lie undressed on a blanket. The pack must reach from the neck to below the knees. The arms are kept close to the sides. Over this pack comes a dry blanket, and over that again the other bedclothes.

A child can stay in a pack for an hour or more. If given under medical direction the time will probably be stated.

Cold Sponging

Cold sponging is a most valuable means of reducing temperature in children. Only a small part of the child's body should be exposed at a time—an arm, a leg, and so on. A small sponge is more convenient than a big one, and each part must be gone over several times, until the skin begins to feel cool. The whole process should take about twenty minutes. Dry each part lightly when finished and cover it again. Ice in the water, when obtainable, increases the value of cold sponging.

Steam Tents

These are very useful in croup and bronchitis, etc., and are easily made. Four long bamboos or broomsticks are required, one for each corner of the cot or bed. When these are firmly tied, a sheet or big blanket must be thrown over the top to form the roof of the tent, and pinned around the poles at each corner. Another sheet or blanket is pinned around the *ends* and *one side* of the bed, so leaving one side only open. A bronchitis kettle, with a long spout, should stand on a spirit-lamp near the bed at such a height that the steam is on a level with, or a little below, the patient's mouth.

Poultices and Fomentations

The great art in making a poultice is to have everything *hot*. Scald out the basin before using it. Pour a little *boiling* water into the basin, and sprinkle linseed meal into it, stirring briskly all the time till a soft even mass is produced, which comes away quite easily from the sides of the basin. An old knife is more convenient than a spoon for stirring.

Tip the mass on to the rag, tow, or whatever has been prepared to receive it, and spread it *quickly* all over till it is a uniform thickness of about half an inch. Turn the edges of the rag over and apply at once on the bare skin, unless otherwise ordered. A poultice needs changing every two to four hours, according to the nature of the case. A thick layer of flannel or cotton wool must be placed over the poultice to keep the heat in. An old vest pinned around makes an excellent bandage, or a soft face towel will do equally well. The heat of the poultice must be tested by the back of the hand before applying it.

Mustard is sometimes added to linseed. This should not be used stronger than in the proportion of one in ten (one tablespoonful of mustard to ten of linseed) for children, nor can they be borne for long on account of the stinging of the mustard. Remember, babies cannot stand the weight of poultices very well on the chest in bronchitis, etc. It is better to poultice the back unless otherwise ordered.

Fomentations consist of flannel wrung out of *boiling* water. A towel must be placed in the basin first, with the ends hanging over. In the middle of this place the flannel, folded into size required. Then pour on the water and wring the flannel out by twisting the ends of the towel tightly in opposite directions. The flannel is then ready for application, though, in the case of a young child, it may not be borne till a little of the heat has gone off. Cover the flannel with oil silk; a folded sponge-bag will do if there is nothing better at hand. Fomentations should be applied freshly every five minutes. They are a most valuable means of relieving pain.

Taking Temperature

The normal temperature of the body is $98\frac{1}{2}$ degrees. A clinical thermometer always has a small arrow marked at

this spot. When a temperature is to be taken, see that the column of mercury is *below* this mark. The best place to take the temperature in older children is the mouth, but in children under five, the groin is the most convenient place. Five-minute thermometers are the safest and strongest for household use. With a restless child it may take double this time to get an accurate temperature.

FORMULÆ

FORMULA I.

Boracic Acid Lotion.—This may be bought of a chemist (saturated solution), and made ready for use by the addition of a little warm water.

FORMULA II.

Dusting Powder.—A good dusting powder can be made by grinding up one tablespoonful of powdered starch with two tablespoonsful of fine oatmeal. This, when thoroughly mixed, should be passed through a coarse muslin sieve to ensure the absence of grittiness. Use with an ordinary powder puff.

FORMULA III.

Soothing Powder for Reddened Skin.—One part of zinc oxide powder, one part of boric acid powder, one part of starch. These should be thoroughly mixed and applied with a powder puff, or dusted on with a little cotton wool.

FORMULA IV.

Mouth Wash.—Condy's fluid, one per cent. solution; put twenty drops in a tumbler of water. Use on a piece of soft linen rag wrapped around the finger and dipped into the lotion.

FORMULA V.

Beef Tea.—Cut up a pound of lean beef into small pieces. Put it into an earthen vessel with two pints of cold water. Let it simmer for two hours.

FORMULA VI.

Chicken Tea or Broth.—Cut up a fowl into small pieces. Put it in an earthen vessel with a little salt and three pints of cold water. Let it boil slowly for three hours. Allow it to cool, and then skim before using.

FORMULA VII.

White Wine Whey.—Take half a pint of cold fresh milk; place it on the fire to boil. When it reaches the boiling-point, pour in a wineglassful of sherry. Let the mixture boil for three minutes, while stirring. Set it aside to cool. When cold, strain off the whey, leaving the curd behind. Add a little sugar, and give in doses of from a teaspoonful to two tablespoonsful, according to the age of the child.

FORMULA VIII. (a).

Barley Water.—Put two teaspoonsful of pearl barley *washed* into a pint of cold water, and boil for twenty minutes. Strain through fine muslin and keep in a cool place. Make freshly every twelve hours.

FORMULA VIII. (b).

Oatmeal Water.—Take one tablespoonful of oatmeal and add a pint of cold water. Simmer gently for one hour. Strain and add sufficient water to make a pint.

The doses of these mixtures are intended for children between one and five years.

FORMULA IX.

Cascara Mixture.—Give ten to fifteen drops of the extract, Cascara Sagrada, in a teaspoonful of peppermint water.

FORMULA X.

Rhubarb Mixture.—Ten to thirty drops of tincture of rhubarb added to two to four teaspoonsful of fluid magnesia makes a safe and useful aperient. It can be repeated each morning if necessary for a few days.

FORMULA XI.

Home-made Cough Mixture.—Take five to ten drops of ipecacuanha wine, and add half a teaspoonful of honey, or a teaspoonful of syrup. To ease a dry, troublesome cough, the dose may be repeated every three or four hours if necessary.

FORMULA XII.

Fever Mixture.—Spirits of mindererus, half to one teaspoonful in water, repeated every three hours if necessary.

FORMULA XIII.

Sedative Powder.—Aromatic chalk powder, three grains; carbonate of bismuth, three grains. This may be given every four hours.

FORMULA XIV.

Castor-Oil Mixture.—Castor oil, five minims to fifteen minims; mucilage, fifteen minims to thirty minims; syrup, twenty minims to forty minims; peppermint water, a teaspoonful to two teaspoonsful, according to the age between

one and five years. This mixture can be given three times a day. The same quantity of castor oil rubbed up with yolk of egg does equally well.

FORMULA XV.

Boracic Ointment.—To be got of all chemists.

To Sterilise Milk.—Place the cold fresh milk in a jug or basin, and stand it in a saucepan of boiling water over the fire for twenty minutes.

FORMULA XVI.

To Peptonise Milk.—Put into a clean bottle one pint fresh milk, one-fourth pint cold water, one “Fairchild’s Peptonising Powder.” Stand this in water *as hot as the hand can bear* for twenty minutes, shaking occasionally. It is then ready for use. “Peptonising Milk Powder” may also be used for the same purpose. Full directions are given on each bottle.

FORMULA XVII.

Whey and Cream Mixture.

Cream	.	.	.	.	.	4 ounces.
Whey	.	.	.	.	.	15 ounces.
Limewater	.	.	.	.	.	1 ounce.
Sugar of milk	.	.	.	.	.	2½ drachms.
						—
						20 ounces.

Give from three to seven ounces, according to age.

LAYETTE

- | | |
|--|----------------------------|
| 6 woollen vests. | 4 day-gowns. |
| 6 flannel binders. | 4 night-gowns. |
| 4 "long flannels" or petticoats. | 2 woollen jackets. |
| 3 dozen Turkish towelling
napkins. | 6 pairs of knitted socks. |
| 6 flannel squares to fasten
over the napkins. | 1 Llama shawl. |
| | 2 woollen or silk bonnets. |

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